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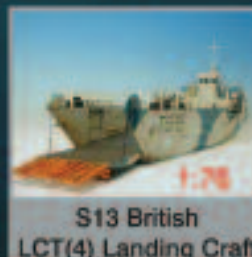
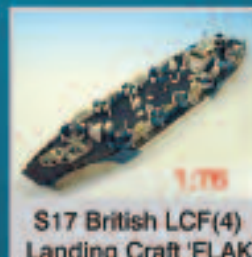
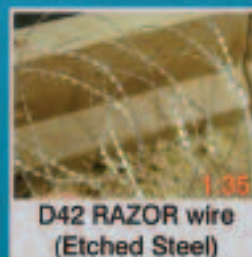
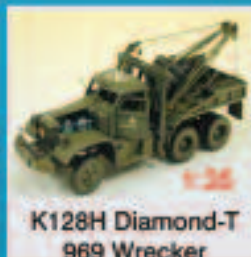
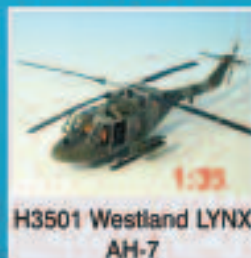
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WELCOME TO MODELx!

What is MODELx? Well, it's a lot of things. MODELx is a new kind of modeling magazine—one dedicated to you, the serious scale modeler. It's written by modelers and edited by modelers. People who are passionate, no—rabid, about the hobby.

In mathematics, X is a variable. X can equal one, or one million. Here, X is also a variable. X can be an aircraft, tank, ship, car, figure, or sci-fi model. It's whatever you want it to be.

X is also symbolic of the modeler. After all, it's Generation X that makes up the largest part of our population. So this about you, as well.

X has also come to signify the extreme. We're planning on that, too. There are, after all, some extreme models out there. We intend to bring them to you.

We started this project believing that a magazine should provide the reader with three very important things:

First, the reader needs to be entertained and inspired. This means we need great photos of great models. The stories will read like a conversation with a real person, not a textbook on quantum physics.

Secondly, the reader needs to learn something. Whether it's a small bit of history about a model subject, or a radical new modeling technique, the reader needs to satisfy the urge to improve his (or her!) skills and knowledge.

And finally, the reader needs to find value in this magazine. The quality of the content, the graphics, even the types of paper we use, all contribute to the overall presentation of the magazine. We want our readers to retain their issues for reference purposes, as a knowledge base of modeling information—and because they want to.

The staff of MODELx have decided to take a radical approach to the models that appear in our pages. Unlike the vast majority of other hobby publications, we're not relying on our readership to submit stories. We're actively in the trenches, commissioning stories from the best modelers in the business, names that you'll certainly recognize. Our goal is bring these spectacular models and the techniques the builders used to create them, to you in a manner that allows the average-everyday Joe to build his (or her!) own masterpiece.

So there you have it... this is what MODELx is going to be. Strap yourselves in; it's going to be a fun ride!

—Jeff Herne
Editor, MODELx



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MARCH/APRIL 2007
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Friul metal link-to-link track sets are one of the best upgrades to apply to your 1/35 scale (and now 1/48 scale) armor models. However, they can be tedious to assemble with the supplied wire. This Tech Talk article shows you how to construct the tracks in a much more efficient manner.

Friul track assembly
by Michael Rinaldi

assembly prep



FRIUL TRACK ASSEMBLY: Each track set is supplied with a small coil of wire to use for the track pins. However, using .020" brass rod is a much easier and more durable method of assembly. This type of brass rod is available from most general hobby stores. The supplies shown above are: the model (to reference the size of each track run), the correct Friul set for your tank, plenty of brass rod, and some basic hand tools.

tools required



These are the simple hand tools that I like to use for this process. From left to right: your standard hobby (X-Acto) knife for clean-up of the flash when present, mini-drill (pin vise) to drill the holes out when needed, flush-face cutters (shears) to trim the brass rod after it is inserted into the holes and most importantly, a good pair of small pliers to hold the rod securely as you push it through the holes.

hole clean-up with pin vise



While not always a necessity, for the purpose of being thorough, I recommend cleaning up the holes as the first step. Once you have assembled a few sets and get used to pushing the brass rod through manually, you can by-pass this step to help speed up the process. The brass rod is strong enough to handle the soft white metal of the track links. However, the light tank sets with their small links may still need to be drilled as they are very delicate and damage can result if too much pressure is used.

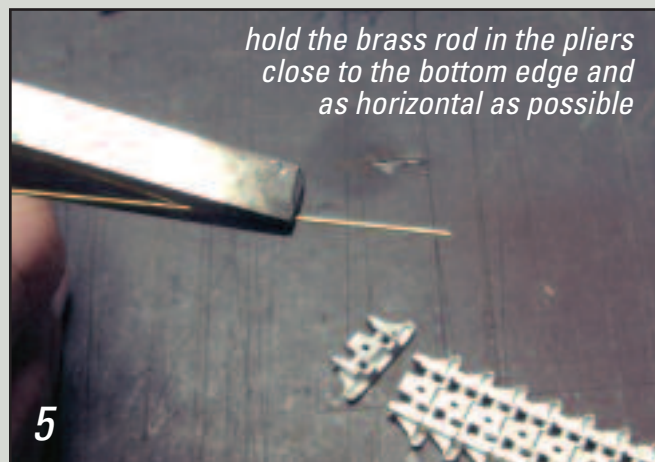
track links prepped and ready for assembly



Once both links are cleaned-up and pre-drilled you can put them together to insert the brass rod. For ease of demonstration, I am showing a run of links in progress, but the process is the same from the first link to the last. Only some of the Friul sets are properly handed for left and right side applications. Usually the larger tanks like the King Tiger (with its offset guide teeth) are so molded.

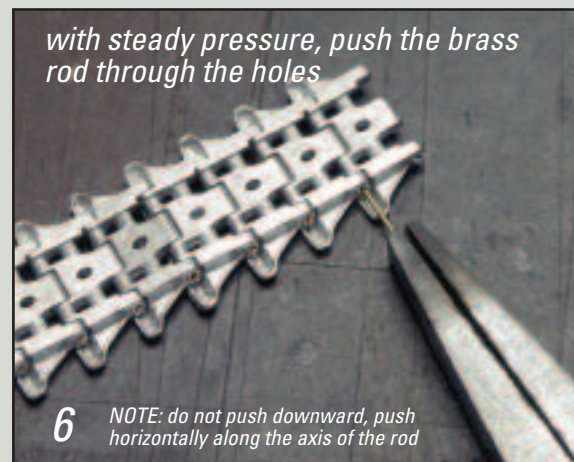
FRIULMODELLISMO ASSEMBLY MADE EASY

hold the brass rod in the pliers close to the bottom edge and as horizontal as possible



Once the track links are ready to assemble, (I do them one at a time, but you can easily prep the entire run at once, if you so desire), I grasp the brass rod with the pliers. I like to hold the brass rod at a point that allows some excess on either side of the link. **VERY IMPORTANT:** hold the rod on the lower edge of the jaws so that you can apply pressure horizontally through the holes and not downward. Otherwise, you will bend the rod as it hits the side of the links and not the holes. It will still happen occasionally, but this method keeps this problem to a minimum.

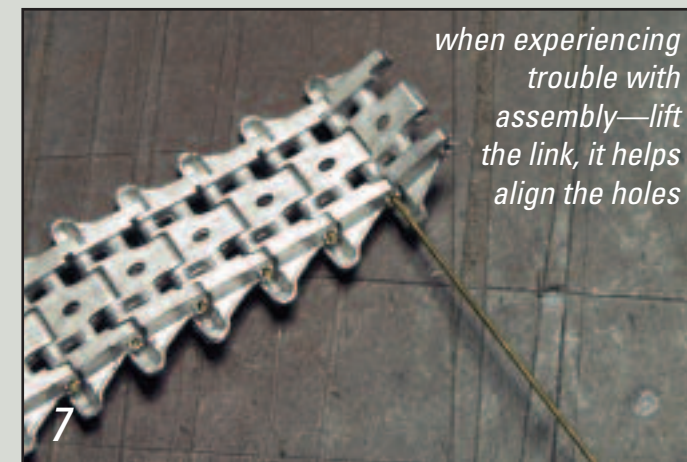
with steady pressure, push the brass rod through the holes



NOTE: do not push downward, push horizontally along the axis of the rod

Start by gently putting the brass rod into the first hole of each link. You will feel slight pressure as it begins to go through the series of holes in both links. I hold the tracks firmly down with my left hand and nearly lay the pliers flat on the work surface as I apply the pressure horizontally. If the holes are lined up properly the rod will slide through easily with minimal fuss. Sometimes the holes are slightly misaligned and require a bit more pressure. Use finesse and don't try to manhandle the brass rod, it will likely bend.


when experiencing trouble with assembly—lift the link, it helps align the holes



Push until you feel it stop at the far end of the holes. I add just a touch of firm pressure to push the brass rod into the soft metal of the end of the link. This is usually sufficient to hold it place without requiring any additional glue. If the links are difficult, or if you're having a hard time pushing through all of the holes, it helps to lift the link along the axis. This will line the holes up a little better. If that still doesn't work, re-drill the holes and try again, or use a new link. Friul supplies plenty of spares so don't be afraid to grab a fresh one, every now and then a poorly-molded one appears in the bag; that is rare though.

completed track assembly ready for the weathering process using Blacken-it



Once the rod is set into place (you can verify this by visually inspecting the gaps between the holes and actually see the brass rod in place), use your flush-face cutters and clip off the excess rod. Hold onto both ends as it will fly away across the room causing utter frustration and descriptive expletives. The final step is to take the end of the pliers and gently push the rod in again to make sure it is set in place. Viola!! Once you get the hang of it, a complete set for a medium size tank will take about 2-3 hours. 

No, your eyes are not deceiving you, this photo really is too big.
The actual model is only 5 1/2" long, from nose to tail.



F4U-1 BIRDCAGE CORSAIR 1943

This photo is more to scale—
yep, that's about the size of it.



KIT: 1/72 Tamiya F4U-1 Birdcage Corsair - number 60774

ACCESSORIES: Eduard PE US Navy WWII seatbelt set

PAINTS: Vallejo Aircraft Colors: 3076, US Intermediate Blue; 3047, Lt. Gull Gray; 3051, US Orange Yellow; 2014, RLM 23 Red; 2015, RLM Blue; Model Air, 001 White; 057, Black and Alclad II Polished Aluminum

WEATHERING: 502 Abteilung brand oil paint washes and filters (see text for colors used), 502 Abteilung Odorless Thinner, MiG Production Pigment: P030, Beach Sand and P037, Gulf War Sand

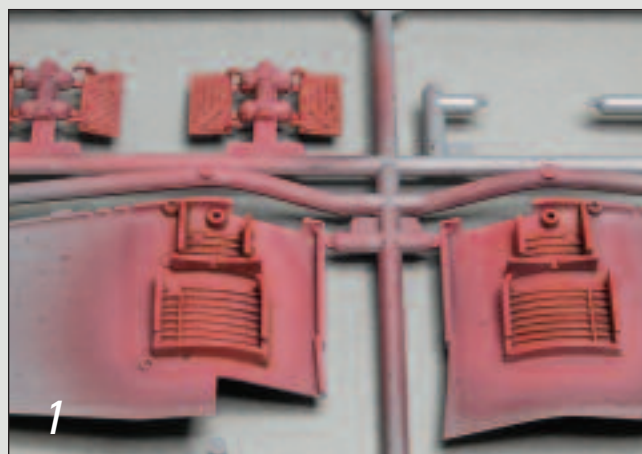
THEATER: South Pacific, Solomon Islands 1943, "The Slot"

SKILL LEVEL: OOB Construction, Advanced Painting

When you think about the war that was fought in the Pacific, it is easy to conjure up images of primitive island conditions, equipment that looks unfit for service and men on the verge of collapse from being asked to do the impossible.

Now put a Corsair into that mental image. Originally designed for carrier service, a landing gear problem resulted in their being issued to the Marine Corps to operate from land-based airfields; replacing their aging and badly outclassed F4F Wildcats. The rest of that story and the Corsair's rise to fame, as they say, is history.

For me, I wanted to physically realize that mental image and replicate its effects onto the new 1/72 scale Tamiya Birdcage Corsair kit. The way a frontline fighter looks when placed into such a brutal environment and then asked to fight a war will leave an unforgettable visual identity. The following article will explain in detail the entire process through which I achieved those results.



ASSEMBLY PREP: Early Corsairs sported a fashionable salmon-colored primer color and using a homemade mix, I sprayed the appropriate parts while still on the sprues.



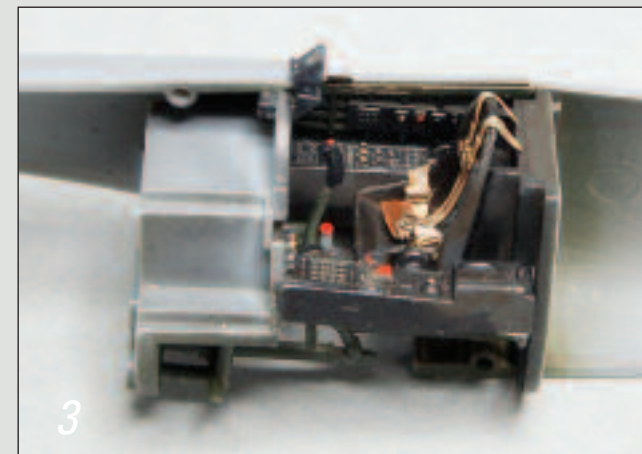
With the main subassemblies painted and washed, they're ready to be installed in their respective locations. The detail in this kit is first rate and it can easily be confused for the 1/48 scale version.



I picked out the various dials and handles in the cockpit with a fine brush and steady hand. Honestly, this is very easy to do, as the raised detail is expertly molded.



I added the Eduard belts once the seat was in place. Care must be taken when bending, as the paint will crack off if you are too aggressive. Tweezers come in real handy here.



With the painted and weathered parts installed, the main assemblies are ready to go.



It takes about 15 minutes to get the parts glued together, including filling and sanding any seams—such a joy!



All holes filled and masked—and ready to be sprayed. Tamiya tape is used to mask the canopy and a liquid mask is used for the side windows.



I use wet facial tissue squeezed almost dry for plugging the larger openings. Liquid mask was also used on the belly window.

LATEST GEM While a beautiful 1/48 scale version of this kit has been available for a few years now, Tamiya thought it prudent to create a 1/72 scale kit to add to their growing small-scale lineup. And what a kit it is. Everything is as detailed and crisp as any of their larger scale kits, including a highly detailed and accurate cockpit. This is the type of kit that keeps modeling fun and provides hours of pleasure from start to finish.

Speaking of finishes, one of my main goals that I mentioned previously was the painting and weathering. I wanted to give a genuine effort in replicating the wear and tear commonly seen with aircraft serving in this theater, so with a few choice reference books in hand, I set out to recreate a veteran South Pacific fighter.

AS EASY AS IT GETS Truth be told, the construction of this kit is so straightforward it defines "shake and bake." Look up the term in the dictionary and you might very well see a photo of this model (or any number of Tamiya kits for that matter—I know you were thinking it). I should, however, give a brief breakdown of how I got the model to the painting stage. I will begin by saying I followed the instructions faithfully. Why? Because they are so well written, I would be a fool otherwise. This, of course, means beginning with pre-painting the interior components. (**PHOTOS 1 & 2**)

Early Corsairs were often sent into action with the original salmon-colored primer still showing, prior to spraying the zinc chromate green. This is a somewhat controversial subject, but it allows for a unique appearance, so I chose to add it to this bird. I used a custom blend of red, yellow and white to get the right salmon color. The actual colors of the cockpits are also a bit of a mystery, with common thought being divided between all- black, or dark green. In the end, I took the middle road and split the difference. I painted the sidewalls in dark green, with the seat and consoles receiving a coat of very dark gray to represent scale black. With the pre-painting complete, I added a wash of dark brown oils to the parts and started the major assemblies. Before gluing the fuselage halves together, the cockpit received a set of Eduard's excellent pre-painted photo-etched seatbelts. (**PHOTOS 3 & 4**)

PREP FOR THE PAINT JOB With the speedy assembly complete, the model was ready to wear its new coat of early war blue gray over light gull gray, as set forth by the U.S. Navy at the time. To mask the airframe openings, I used the canopy to cover the cockpit, and wet tissue for the wheel wells and engine. I used a liquid masking agent for the smaller side windows and the lower underbelly window that was a short-lived feature of early Corsairs (**PHOTOS 7 & 8**).

Since I spend my days building indoors, I spray mainly with acrylics. Besides being a lot more user and environmentally friendly, there are a few new brands that have made a big difference in my painting methods. Vallejo brand paints from Spain are leading the way with their new acrylics and their Aircraft Color line is first rate. They come pre-thinned for airbrushing and are packaged in handy eyedropper bottles that make adding paint to the airbrush a simple task. The colors are lightened about 10 percent to offer a nice toned-down effect straight from the bottle. However, my weathering method requires lightening the colors about another 20 percent to compensate for the subsequent washes and filters. These will ultimately darken the paint job.

AIRBRUSH READY With the model masked, I primed it with Mr. Surfacer 1200, which dries so tightly to the surface that no detail is lost. I pre-shaded the panel lines with a very thin dark red and brown/black mix. Judging by the photos (**PHOTOS 9 & 11**), I didn't take too much care to get it precise and afterwards laid down some very light coats of the light gull gray on the undersides. (**PHOTO 12**) After a quick rinse of the airbrush, I loaded it with the blue gray and masked off the appropriate demarcation lines on the lower wings and fuselage sides. I lightly sprayed on the main color in a few layers, then added a few drops of white to the paint and sprayed some light

post-shading with a focus on a mottled effect. (**PHOTO 10**) Getting to this point took only a weekend of modeling at half speed. It helps that the model is only about 5 1/2" in length! It doesn't require a very long time to mask and spray the paint job.

DECALING TIME With the camo finished, I gave the model a few layers of Future in preparation for the decals. I used the kit decals for the U.S. stars and small stencils, and sourced the "F6" and "6" from a generic Microscale decal sheet. To lay down the thick Tamiya decals, I highly recommend Gunze's Mr. Mark Softer. It simply melts the decals into the surface. Because they were not provided in the kit, I masked the wing walk areas and sprayed those, as well. They are very evident in period photos. A few quick passes with Vallejo's flat clear varnish returns the paint to a dull luster and provides a very durable barrier for the next step.

With all of the camo and markings applied, I'm ready to begin the weathering process (my favorite part) and will defer to the photo captions to walk you through how I accomplished that task. A quick note: I strongly recommend high-quality oil paints like the 502 Abteilung used here. They last forever and provide the proper consistency to achieve the finest and most subtle effects. Now onto the fun part...

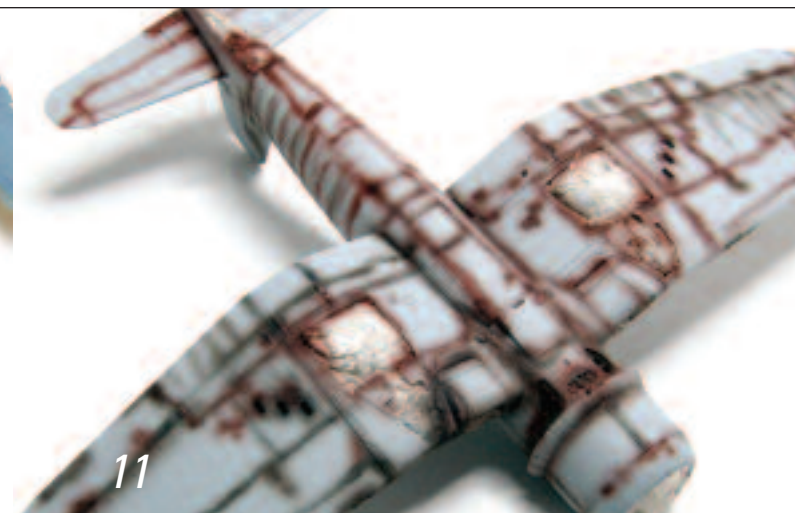




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PRE-SHADING AND POST-SHADING EXPLAINED: Photos 9-12 > These methods are often talked about and many modelers now use these techniques, including yours truly. First and foremost, it's a great way to create a basic

paneling effect. For starters, I don't use straight black, but prefer to use a lighter mix with brown and red added. Pre-shading can be done quickly, so don't be concerned with precision. It is definitely the easier of the two

methods to use, as post-shading requires a lot more finesse and understanding to get the desired results. Paint is put down in very light, successive layers on the underside, with each pass covering a little more of the panel

lines. On the upper surfaces, it is important to remember the vertical sides are not as exposed to sun fading as the horizontal surfaces are. The goal is to create a random appearance.



13



14



15



16

APPLYING THE DECALS AND MARKINGS: Photos 13-16 > Tamiya's decals are usually on the thick side and because of this, require a bit more coaxing to make them adhere tightly to the surface. The best method is to use Gunze

Sangyo's Mr. Mark Softer, which also works wonders with Hasegawa's decals. To get the nice panel lines through the U.S. stars, I ran my knife very lightly to score the decal as it dried. To represent an aircraft from VMF-224, I used a

nice reference photo of a four-plane flight heading out on patrol over "The Slot" in the Solomon Islands. I liked the simple black stencil F + number code, so I chose to recreate one not seen in the photo. I don't know who flew F6,

or its combat record, but I had to use it. It was the only number I had that was the same font style as the wartime stencil. Photo 15 shows the Tamiya masking tape from underside and is always a great product to keep in stock. Note



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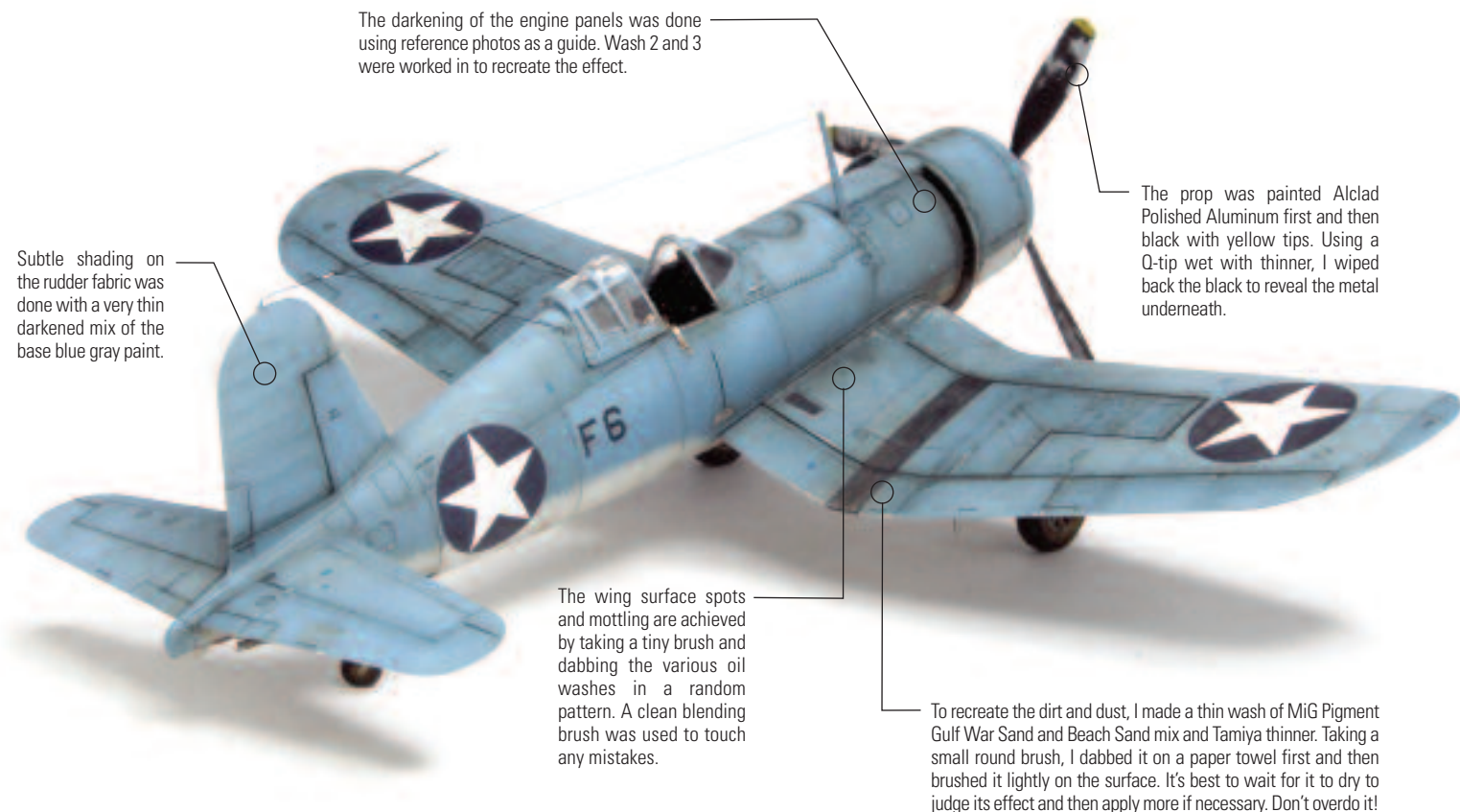
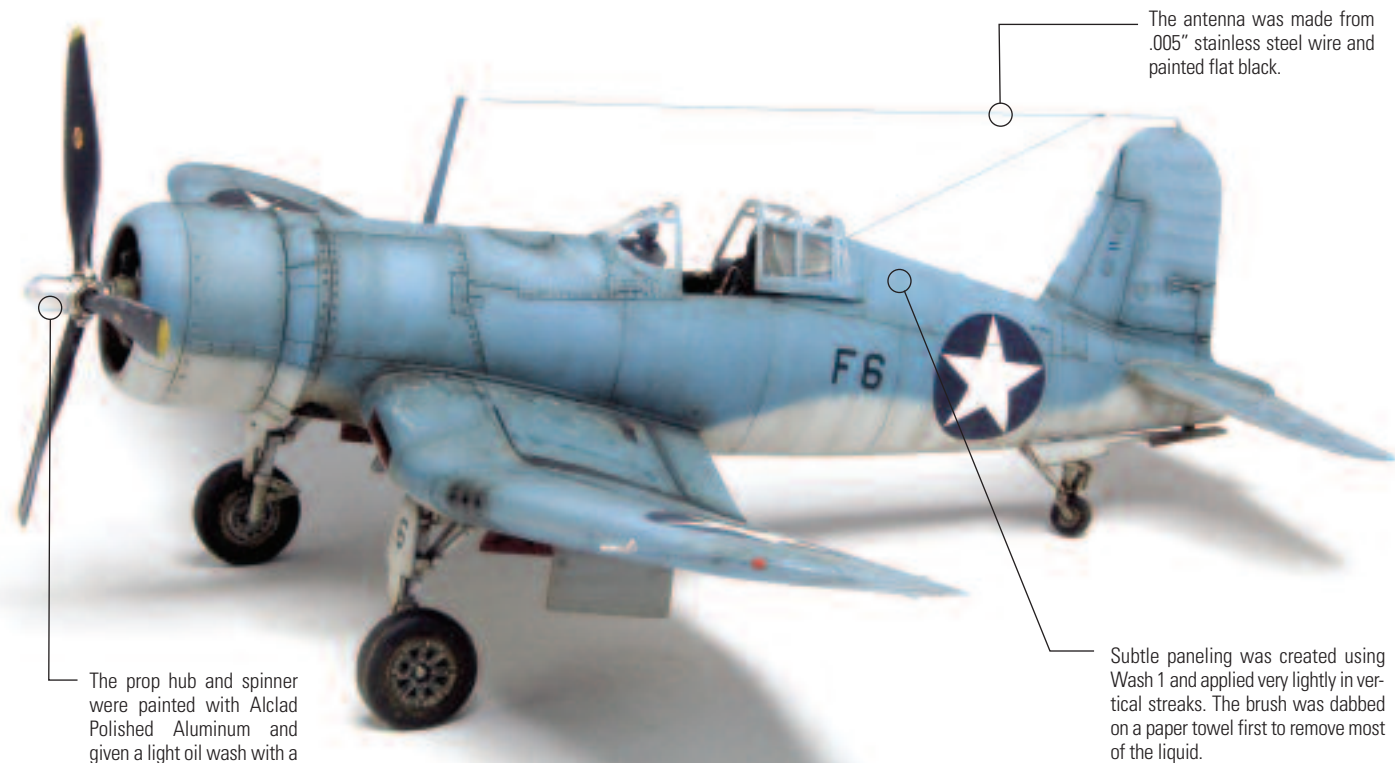
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that the color demarcation line follows the wing fold line before stopping at the mid-wing line on the leading edge. The top horizontal line of the star is directly on the corresponding panel line. This is a big help in aligning the decals.

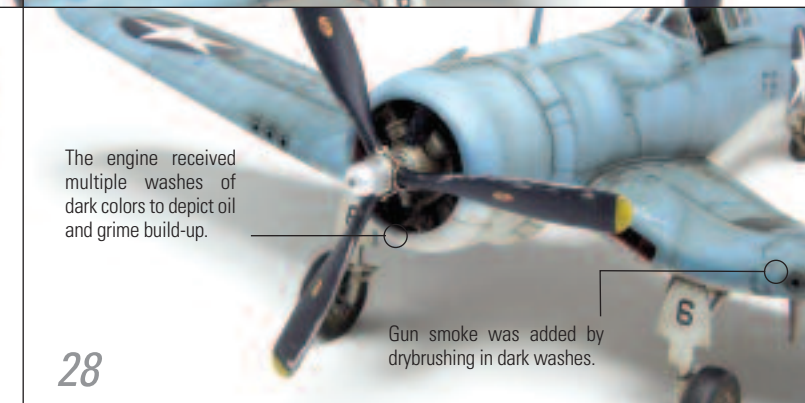
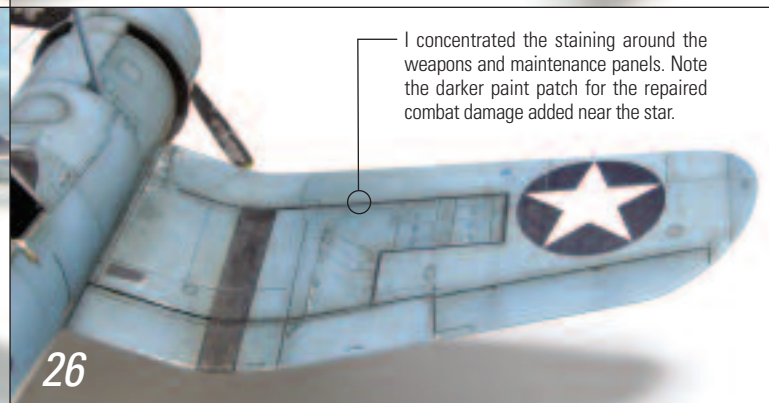
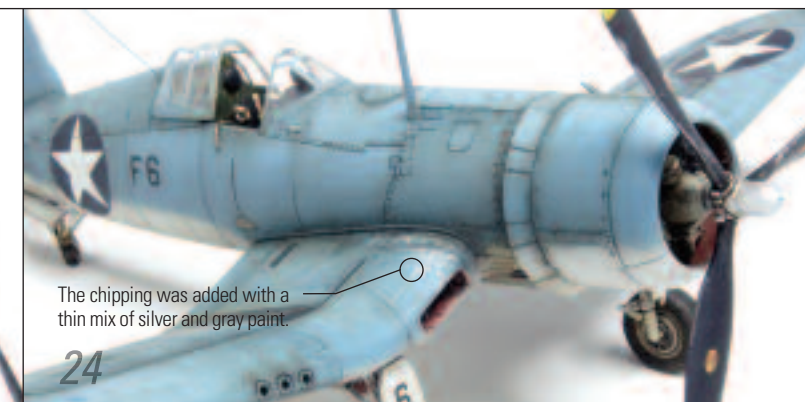
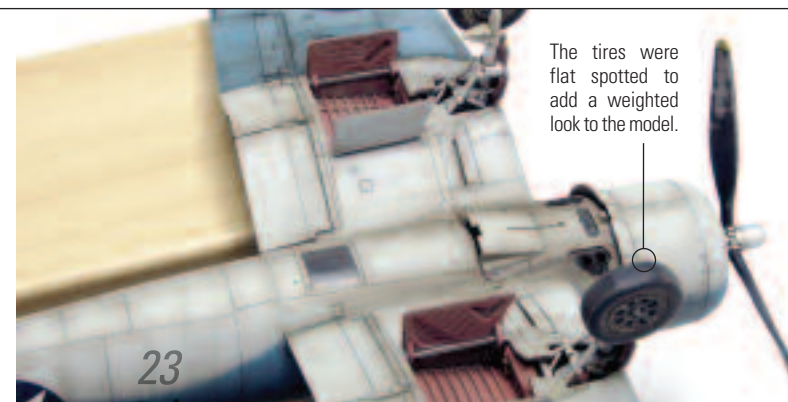
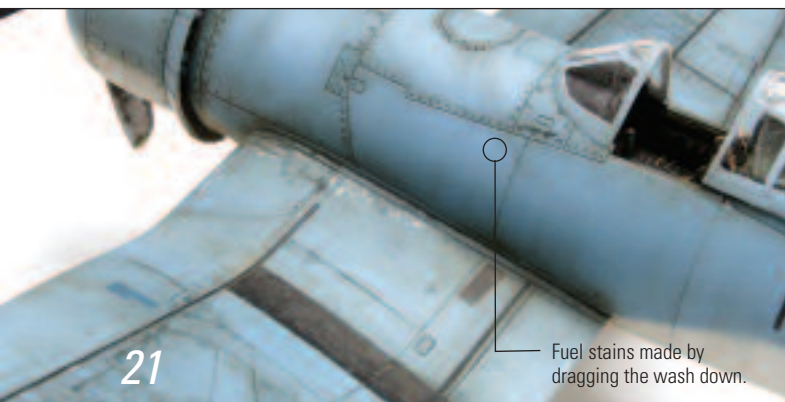
DETAIL WASHES APPLIED: Photos 17-18 > I mentioned earlier in the text that I wanted the weathering to effectively replicate the harsh South Pacific wear and tear. I created three levels of oil washes; (1) a light gray/brown, (2) a

darker gray/brown, and (3) a darker mix of blue, black, and brown. I laid Wash 1 down over the entire airframe and in every panel line as a foundation. Wash 2 was run into the major panel lines like the engine and weapons

access bays and Wash 3 was applied to the main control surfaces to make them stand out the most.



OVERALL MODEL PHOTOS (ABOVE) AND DETAIL PHOTOS (BELOW)



The Supermarine Spitfire was one of the greatest fighters to ever fly and fight. The last iterations of this beautiful bird were powered by the mighty Griffon inline V-12. A recent trip to the UK found us at the Duxford Military Museum to snap some shots of their Mk 22 in its new setting.

Supermarine Spitfire Mk22/24
photos by Michael Rinaldi

Griffon power!

Spitfire

Mk22



Photo courtesy of the BBA Collection, UK.



Photo courtesy of the BBA Collection, UK.


SUPERMARINE'S FINAL SPITFIRE Most airplane model buffs know the history of Britain's iconic fighter. Alongside its capable stable mate the Hawker Hurricane, the Spitfire played a pivotal role in nearly every theater of the war, from start to finish. The aircraft even saw service as a carrier fighter—a remarkable achievement. Each arena brought forth its strengths and weaknesses. A quality the Spitfire always had, and one that would allow it to serve for far longer than the Hawker, was its ability to be continually upgraded. This ensured that it would maintain its edge as one of the best Allied fighters

of the war. Speed is life to a fighter plane and the Griffon engine Spitfires were fast, their high altitude speed was over 450mph.

Testing began in late 1940 by Rolls Royce in an effort to replace its famous Merlin engine with the new, larger and much more powerful Griffon engine. The Griffon provided as much as 50 percent more horsepower than the previous motor. This huge increase would also cause flight issues that would delay its introduction into service. Ultimately, the Griffon-powered Spitfires would require a lengthened and stronger

fuselage and the wings would also need reinforcing to improve structural integrity for higher speeds. The new engine sported a large five-blade Rotol propeller that necessitated the repositioning of the landing gear to allow for safer takeoffs and landings.

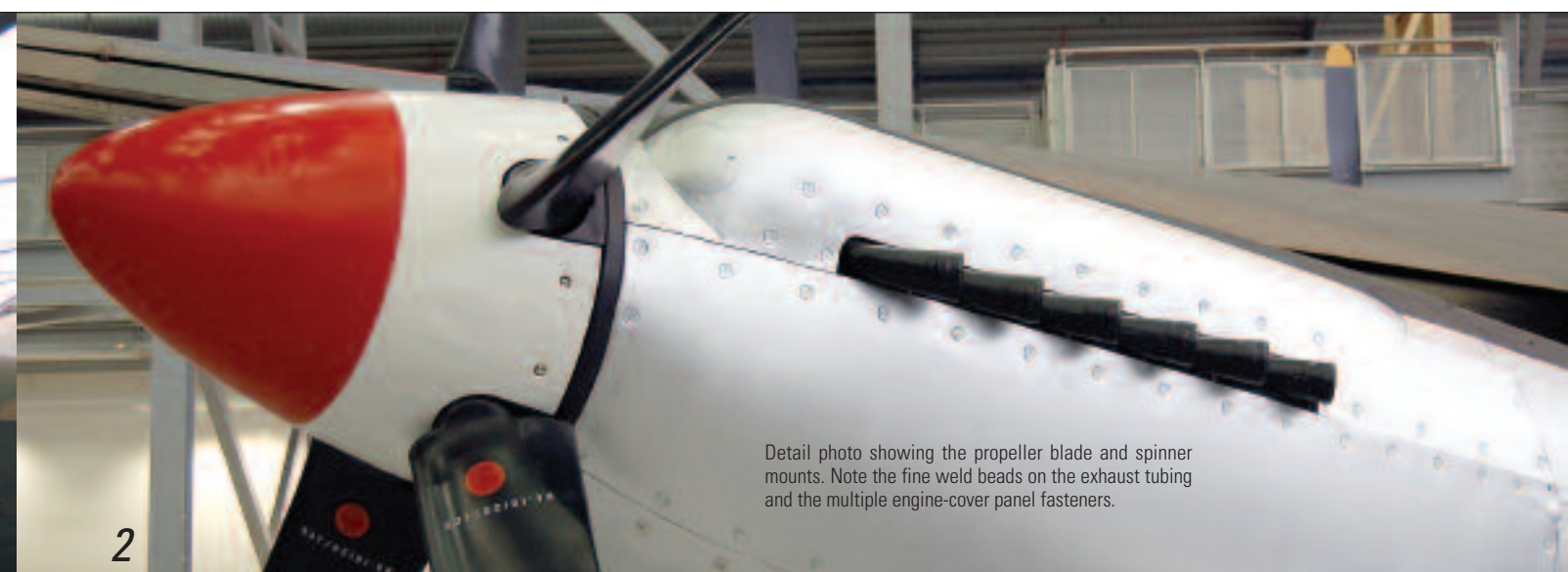
Pilots that flew these sleek beasts, and were familiar with the earlier Merlin Spitfires, had to readjust their knowledge with the newer birds. This much horsepower, in such a small airframe, could be a real handful. But, like all great planes, once its special needs were met, it became a

truly unbeatable fighter—even shooting down V1 rockets in the final months of the war. It also served on through the jet era as a frontline fighter well into the 1950's. Supermarine continued to develop the basic Spitfire concept with more powerful engines and new laminar-flow wing designs, culminating with the Spiteful series. All of these developments would help to push Britain's post-war fighter programs to greater heights. Of course, the war's end terminated many programs, but the Spitfire's legacy was long and well deserved, indeed. 



The business end of the Griffon engine. The larger five-blade Rotol prop turned in the opposite direction of the Merlin versions.

1



Detail photo showing the propeller blade and spinner mounts. Note the fine weld beads on the exhaust tubing and the multiple engine-cover panel fasteners.

2



3 The slim profile of the bubbletop Spitfire cuts a graceful silhouette. The Duxford example is painted in High Speed Silver.



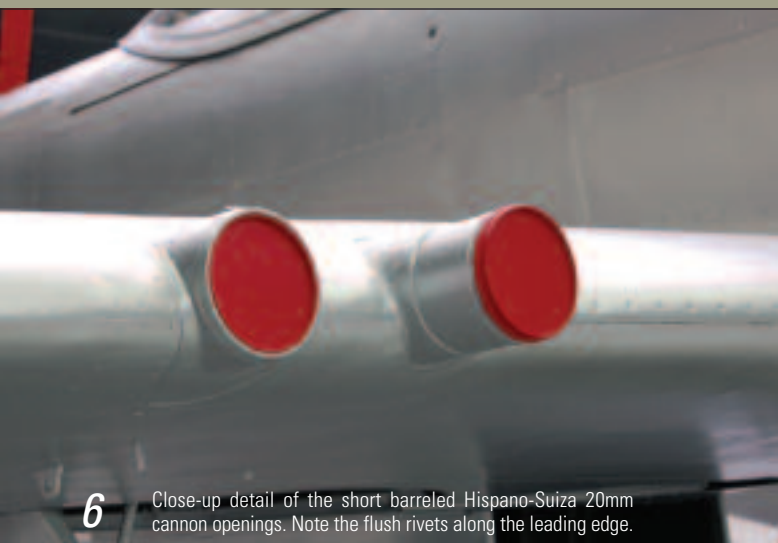
4 The tight fitting canopy is quite a bit smaller than its Allied fighter counterparts like the Mustang and Thunderbolt.



The 20mm cannon blisters and engine rocker covers are very prominent features of the later marks.

5

This Spitfire Mk 22 beautifully restored at the new Duxford Military Museum's



6 Close-up detail of the short barreled Hispano-Suiza 20mm cannon openings. Note the flush rivets along the leading edge.

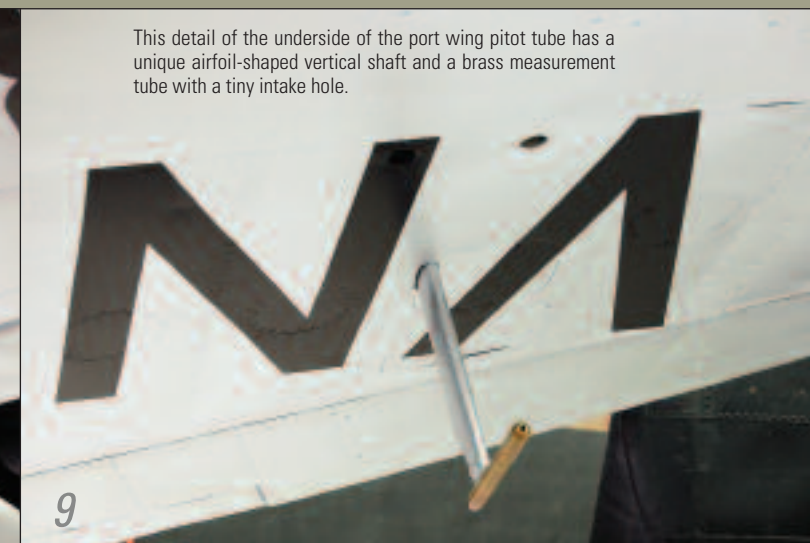


7 The panel lines and stressed skin fuselage are clearly evident. The fine whip antenna at least means no wires to rig!



The tiny winglets are actually there to direct the ejected shells away from the airframe when the cannons fire. Note the myriad of little holes and inspection panels.

8



This detail of the underside of the port wing pitot tube has a unique airfoil-shaped vertical shaft and a brass measurement tube with a tiny intake hole.

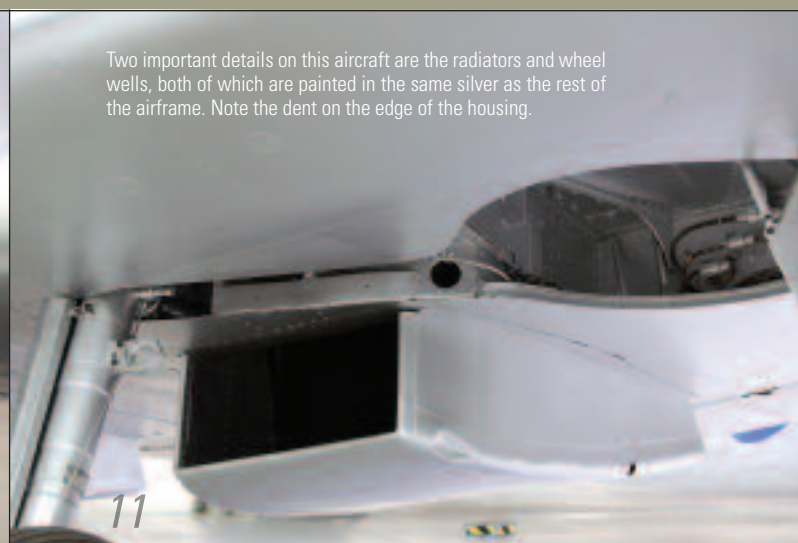
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hangar and is nestled in between the huge Lancaster and Vulcan bombers.



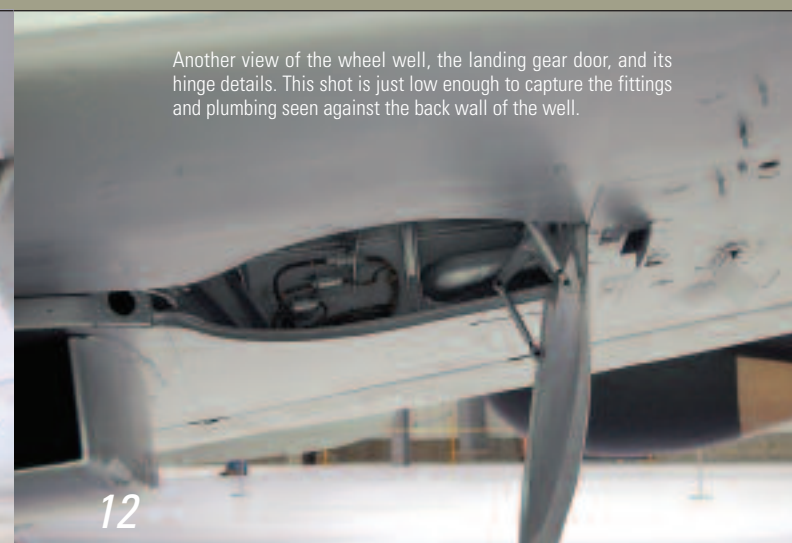
Close-up detail of the lower engine covering and the oil cooler intake scoop. Note the interior detail and the chipped paint on the fasteners.

10



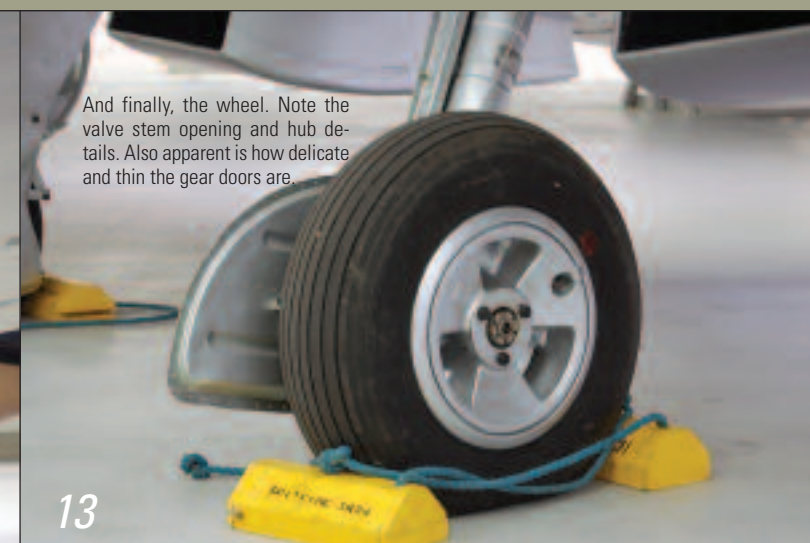
Two important details on this aircraft are the radiators and wheel wells, both of which are painted in the same silver as the rest of the airframe. Note the dent on the edge of the housing.

11



Another view of the wheel well, the landing gear door, and its hinge details. This shot is just low enough to capture the fittings and plumbing seen against the back wall of the well.

12



And finally, the wheel. Note the valve stem opening and hub details. Also apparent is how delicate and thin the gear doors are.

13

JAGDPANZER HETZER

38t

KIT: 1/48 Tamiya Jagdpanzer Hetzer 38t - kit number 32511

PAINTS: Tamiya XF-69, NATO Black; XF-60, Dark Yellow; XF-59 Desert Yellow and XF-57 Buff. Vallejo Model Color 833, German Camo Bright Green and 830, Field Grey

WEATHERING: Custom mixed MIG Productions Pigments (see text for colors used), oil paint washes (see text for colors used)

THEATER: Western Front - France, 1944

SKILL LEVEL: Intermediate Construction and Painting

INTRODUCTION All right, I have a confession to make. Up until a few months ago, I would have bet good money that yours truly would be the last modeler on the face of the Earth to build anything armor-related in 1/48 scale. But after a good friend of mine gave me a couple of the new Tamiya armor kits, I was obliged to build both. In retrospect, I must admit to being terribly remiss in purposely avoiding this scale. This project was a truly enjoyable experience and a terrific departure from the norm.

For the subject of this article I chose the diminutive Tamiya Jagdpanzer 38(t) Hetzer Mittlere Produktion (Kit number 32511). I had nothing on-hand in the way of aftermarket accessories for this kit. The Hetzer has not been neglected in this scale, as several prominent manufacturers have given this subject the complete treatment. So, as I was determined not to build this kit straight-out-of-the-box, any details I chose to add would have to be scratchbuilt. This is really much simpler than one would think.

LET'S GET STARTED Kit number 11 in their 1/48 scale Military Miniature Vehicle Series, this kit is typical Tamiya. With terrific detail and precise engineering resulting in near perfect fit, kits from this manufacturer have long been held as the industry standard. This offering does nothing to short-change that reputation, although the die-cast lower hull did throw me a bit. It really adds little more than weight to the model, doesn't detract from the finished piece and—I thought it was kind of cool. So, I pressed on.

Assembly of the lower hull components was pretty much uneventful. But I did take care to ensure the four bogie trucks, A8, rest uniformly on your workbench top before gluing to the hull. I recommend using a slow setting cyanoacrylate for this procedure. Being a little careless in this regard, my Hetzer now possesses a bit of a wobble!

Admittedly, the link-and-length tracks concerned me, especially after seeing that the instruction sheet devotes three full steps to their installation. Tamiya to the rescue! In spite of their small size, these tracks were an absolute breeze to assemble and look exceptional when in place. Suddenly, I was in a happy place!

From the outset of this project I had defined several simple details to add. Among these were the handfuls of wire loops used to help secure foliage. On the real Hetzer, these are welded to the upper hull in strategic locations. I essentially used the same method in this scale as I would have had this been a 1/35 scale kit.



IN PROGRESS › CONSTRUCTION

I decided to “button-up” the tank, as I had no interior components to add. So as soon as the hull halves were glued together, it was time to move ahead to some scratchbuilding!

IT'S ALL IN THE DETAILS The first detail I tackled was the rhomboid-shaped engine intake screen and louver. Now, I could have simply added one of the many fine photo-etch components for this. But again, I was resistant to adding any detail that was not of my own hand (not to mention being too cheap to fork over the bucks). Besides, it was really not that complicated.

Initially, I added three .020" x .020" styrene strips in a reverse C-shape across the top surface of the intake opening. I then added the sliding louver I had pre-measured and cut from .010" styrene sheet, following the kit dimensions, but using my references to define the outside edge. It's important not to forget to slot the louver to allow for the wing nut that secures the door.



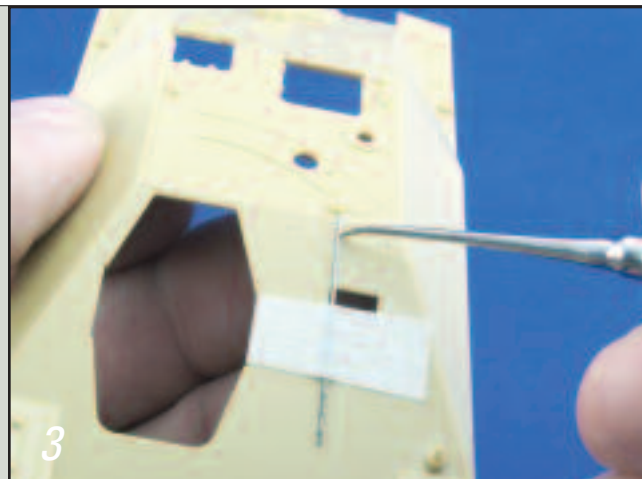
1

My reputation as a destroyer of individually-linked tracks took a hit with this one! These little link-and-length gems are well detailed and easy to assemble. Here the lower hull is completed and awaiting the upper half.

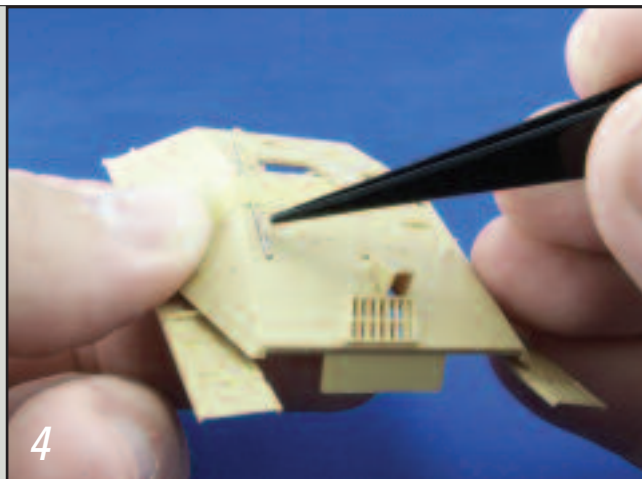


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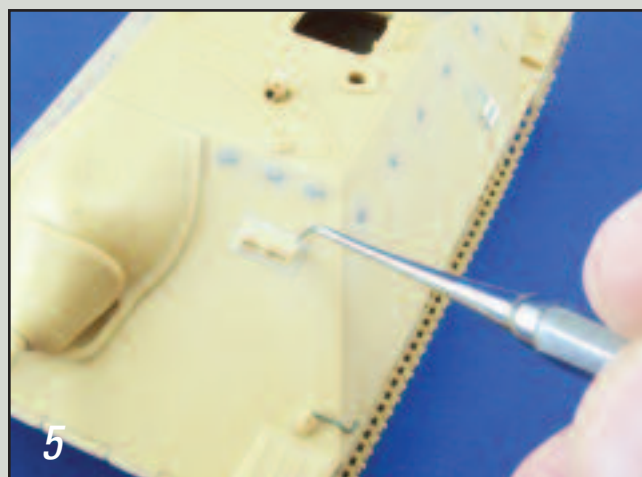
Awaiting primer, the Hetzer sits with schürzen plates temporarily affixed. These panels were painted off the model, and then installed during the latter stages of weathering.



Using a number 75 (.021") bit as a guide I lightly punched a pair of parallel holes with a scribing tool at appropriate locations around the upper hull and rear deck. This method ensures even spacing of the loops. I followed up by drilling the holes through the hull using a number 84 (.0115") bit.



Here I'm adding a loop of .007" copper wire from Acorn Enterprises. After replacing the number 75 drill bit, I pull each leg of the wire through from the inside and simply twist the wire a few times to secure. I then permanently affix the loop with a drop of super glue on the inside. Externally, I added a minute drop of Mr. Surfacer 1000 to the base of each loop and voila!, a perfectly formed loop.



One of the simplest details I added was the weld bead that surrounds the driver's armored visor. I used a thread of Aves Apoxie Sculpt two-part epoxy putty, detailed with the back-side of a scribe, and then gently smoothed with a brush moistened with water.



I tend to do a lot of the final shaping of details parts after attaching them to the model. This has the obvious advantage of making the handling of some of the more "fiddly" parts easier, if not unnecessary, during the clean-up stage.



Here I'm carefully adding a slice of .030" hex rod to one of the schürzen hanger supports. Allowing this detail to overhang the pre-drilled hole a bit simulates the simple hole-and-notch feature of the bracket. I later topped the hex nut with a small piece of .010" rod to represent the exposed end of the stud.



A quick application of Mr. Surfacer 1000 straight from the can is all I needed to prepare the model for subsequent color coats. Notice how uniform and clean all the details appear after priming!



In this photo the scratchbuilt engine intake louver and screen takes center stage. Using simple and fundamental building techniques, this detail was completed in about 30 minutes—proving that scratchbuilding need not be a lengthy and laborious process!



A couple of light coats of Tamiya XF-69 NATO Black, reduced with the recommended thinner, will keep any details found in those pesky hard-to-reach areas in the shadows. An added benefit is the black acts as a terrific base color for the rubber tires and tracks.

I placed this detail in a half-open position, and then completed the open-ended "C" by cementing a piece of .010" x .020" styrene strip across to close it. When the part was dry, I carefully sanded each joint to create a seamless frame. The final touches were installing brass screen trimmed to the correct configuration, and adding a wing nut created with two .039" discs I punched from thin styrene.

The next prominent feature to be addressed is the jack and its bracket. Personally, I don't care for molded-on details, so this arrangement had to go! I carefully liberated the jack from its frame and set it aside. I glued four pieces of .015" x .040" strip styrene together to create a square standing .10" tall. I did this twice, and when dry I cemented both in place over the locating holes in the rear right fender. These would be the elevated stands the jack would rest upon. Next, the jack was added, taking care to orientate it properly on the stands per the reference photos. The actual brackets that held the jack in place were four pieces of .010" x .040" styrene. These were cut to a length of .10," and then glued upright beside the jack and square over the stands. The outer most pair of brackets was given that peculiar bend prior to installation. To finish off the assembly, two pre-bent lengths of .010" x .040" plastic were added to replicate the hinged and curved upper portion of the bracket. Then, the small clasps I had fashioned from .010" x .010" styrene strip were glued to each.

In a moment of weakness, I decided to replace the kit schürzen and support brackets. The kit parts, while complete, looked a bit heavy (I keep forgetting this is 1/48 scale!). I thought new skirts would really dress up the model.

I took the easy way out and replicated the schürzen plates first. I accomplished this by simply using the kit part as a template and trimming replacements from .010" styrene. After rounding off the corners slightly, I cut the skirt into three appropriate lengths, per my reference drawing. In this flimsy state, the panels are nearly unmanageable, so I glued a piece of .015" x .156" strip stock to the back to help strengthen and keep the plates in line.

The support brackets were fairly simple to build, but required several steps. I needed an even dozen, 10 of identical length and two extended hangers. My thoughts immediately turned to a way to mass-produce them. After determining the dimensions, I glued a pair of three-inch long strips of .010" x .040" styrene together to form an L-shape. When the part dried, I cut 10 individual pieces about .10" long. The real schürzen plates were actually hung on studs mounted to the hull sides, the stud being slipped through a hole and notch in the permanently attached bracket. A nut was then tightened to secure the bracket to the hull. Drilling a hole near the top edge of each bracket using a number 75 drill bit simulated this arrangement. A nut fashioned from

.030" styrene hex rod was glued in place and allowed to overhang the hole slightly. I further detailed the nut by adding a .010" disc to replicate the end of the stud. Following my references, I noted which direction the flange faced and cemented each bracket in place.

The rearmost brackets were a little more involved and I actually built these in place after several failed attempts to fashion them off the model. Other details I added at this point were the electrical lead for the Notek light simulated with a string of epoxy putty. This was held in place by a pair of brackets cut from .003" brass shim stock. I also fashioned new styrene brackets for the pry bar located on the right upper superstructure. The molded-on grab handles found on the rear deck and hatch cover were replaced with brass and copper wire copies, while the pair of prominent screws found on the upper mantlet were carefully notched with a new, single-edged razor blade.

The remainder of the kit went together with little effort and leaves the modeler with a terrific little rendition of the Hetzer.

COAT OF MANY COLORS Typically, I prime just about everything, especially if I'm going to use acrylics such as Vallejo or Tamiya. My primer of choice for the last few years has been Gunze Sangyo Mr. Surfacer 1000 straight out of the spray can. It produces a skin-tight and durable finish while providing just enough "tooth" to help subsequent color coats adhere.

As soon as the primer was dry, I shot two light coats of Tamiya XF-69, NATO Black onto the running gear, tracks and undercarriage of the model. This would help hide any hard to reach details I might miss with subsequent color coats and weathering, while also providing a nice base for the tracks.

Experts contend Germany began using green as a base color at some point late in the war and it might have applied in the case of this particular vehicle. However, I decided to airbrush the dark yellow first. This was predicated by the fact that I intended to brush paint the other two camouflage colors and wanted to avoid coverage issues. Even amounts of Tamiya XF-60, Dark Yellow and XF-59, Desert Yellow, with a few drops of XF-57, Buff to bring the color to scale, created my rendition of dunkelgelb.

Using Vallejo Model Color 833, German Camo Bright Green, with a drop of 830, Field Grey to knock the intensity down a bit, I carefully followed the kit illustrations and applied the camouflage with a number 0 sable brush. The paint was reduced approximately to a 7:1 distilled water-to-paint ratio. I resisted the temptation to outline the camo scheme first. Instead, I laid the brush loaded with paint on its side, and then using gentle pressure, let the paint flow outward and carefully manipulate it across the surface of the model. This technique of applying several translucent layers that readily meld into each other creates a seamless



The Hetzer sits resplendent in a fresh coat of Dunkelgelb. I mixed equal portions of Tamiya XF-60 Dark Yellow and XF-59 Desert Yellow to create the base color, and then added a hint of XF-57 Buff to tone down the color for scale effect.



I applied a second coat of highly diluted Vallejo Model Color 833 German Camouflage Bright Green thinned at a 7:1 ratio. I refrained from simply outlining the camo pattern and filling in the rest. Instead, I laid the brush almost parallel with the surface of the model and gently "coaxed" the paint from the tip of the brush to establish the edge. This creates a fine, soft demarcation line that looks much better in this scale.



Using a blend of Vallejo Model Color 846 Mahogany Sand and 921 English Uniform, I applied my version of red brown to the right side of the Hetzer. Notice how I have left a few "light" spots where the base dark yellow peeks through. This creates a variance of tone and adds character to the model after the weathering process is complete.



The kit decals were in fine register and reacted well to setting solutions. I had previously sealed the model with a semi-gloss lacquer. Here I'm applying two mist-coats of a high-quality flat finish after the markings were left to dry thoroughly.



The model was in serious need of some toning down. So a light, but complete, application of Tamiya XF-57 Buff fit the bill to create just the scale effect I was looking for.



Enhancing details like these really brings the model to life! If deemed necessary I'll often apply pin washes to the same details several times over the course of weathering a model. Here I'm re-addressing some bolt heads found on the superstructure roof.



Here is another opportunity to utilize the excellent MIG Productions line of pigments. Using Beach Sand and Europe Dust, reduced with Humbrol Thinner, I slathered the mixture onto the tracks, fenders, running gear and belly of the Hetzer.



As a final touch I'm painting the worn metallic areas of the vehicle using my favorite blend of silver enamel and raw umber oils. This creates a color that is not too shiny, but reflects enough scale light to look effective.

covering that leaves absolutely no brush marks. Usually two coats will suffice, but don't be afraid to leave a hint or two of the paint exposed underneath. It will create a nice tonal variation that ultimately adds to the overall character of the model.

After the green was thoroughly dry, I used a mix of Vallejo 846, Mahogany Sand and 921, English Uniform to create the red brown. Following the same method as before, I finished off the camo scheme.

In an effort to tone down the rather loud color scheme and bring continuity to all the colors involved, I applied an overall wash using highly reduced Winsor Newton Burnt Umber to every surface of the model.

One drawback to using acrylics is their inherent fragility. To protect the finish during the often rigorous weathering process, and also in preparation for decals, I routinely mist two coats of a high-quality semi-gloss lacquer onto the model.

Kit decals were utilized for tank 213, of 2.Pz.Jg.Abt 744, 1.Panzer Armee, in action around Nove Mesto, Czechoslovakia, during the summer of 1944. These markings went on without a hitch using the Micro Set and Sol system, with an overspray of Testors' Dullcote to seal them perfectly.

FINISHING UP The Hetzer is a small-scale model with a somewhat complex camouflage scheme, so I purposefully avoided employing many of the secondary washes that I normally use. I didn't want to cram too many

effects into such a small area. There comes a point when the weathering overpowers the essence of the model. To subdue the overall finish, a quick dusting of Tamiya Buff, reduced 10:1 thinner to paint, was all that was needed to further moderate the final finish.

Pastels were brought into play when addressing the muffler. I airbrushed a mixture of rust and light ochre chalk pastels, reduced with Tamiya thinner, onto the assembly. Later, the muffler received a few very light washes of burnt and raw umber oils and a hint of pastels.

Details such as periscopes, spare tracks, tow cables, jack block and the remote control machine gun were painted next. I drilled out the end of the MG34 barrel and enhanced the cooling ports with a small bit, just for grins.

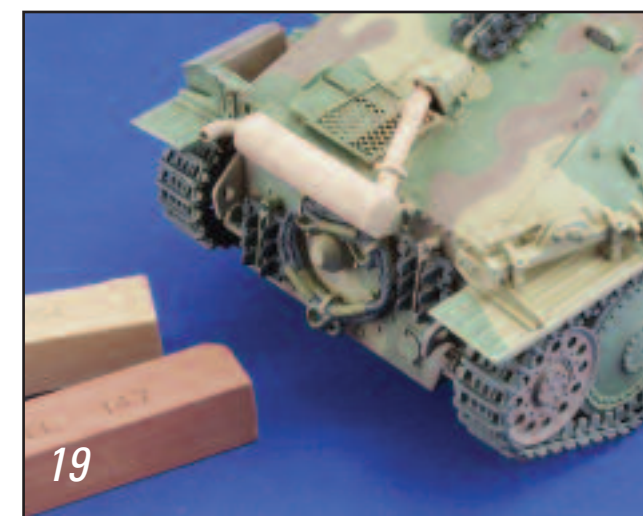
Since this vehicle sported little in the way of body damage, I felt restraint should likewise be used with oft-overdone effects such as chipping and rusting. Therefore, I mixed a blend of Model Color 985 Hull Red and 862 Black Grey, and using a nicely pointed brush, began adding small chips and scratches to strategic locations around the model. The most significant edges received some sort of wear, while clamps, hasps and brackets were also addressed. In retrospect, I should have added the chipping before dousing the model with the buff color, as I think it would have effectively toned down the chipped edges. Burnt sienna oils were later added to a few of these spots to represent fresh rust, but those areas were kept to a minimum.

Many of the details were in desperate need of enhancement, so out with the burnt umber oils, once again! Using Turpenoid as a reducer, I carefully added a pin wash to each and every detail. It is important to remember to pre-wet these areas with a clean brush moistened with thinner. This breaks the surface tension and allows the pin wash to localize around the detail and not stain the adjacent areas. I repeated this same process using burnt sienna, as well.

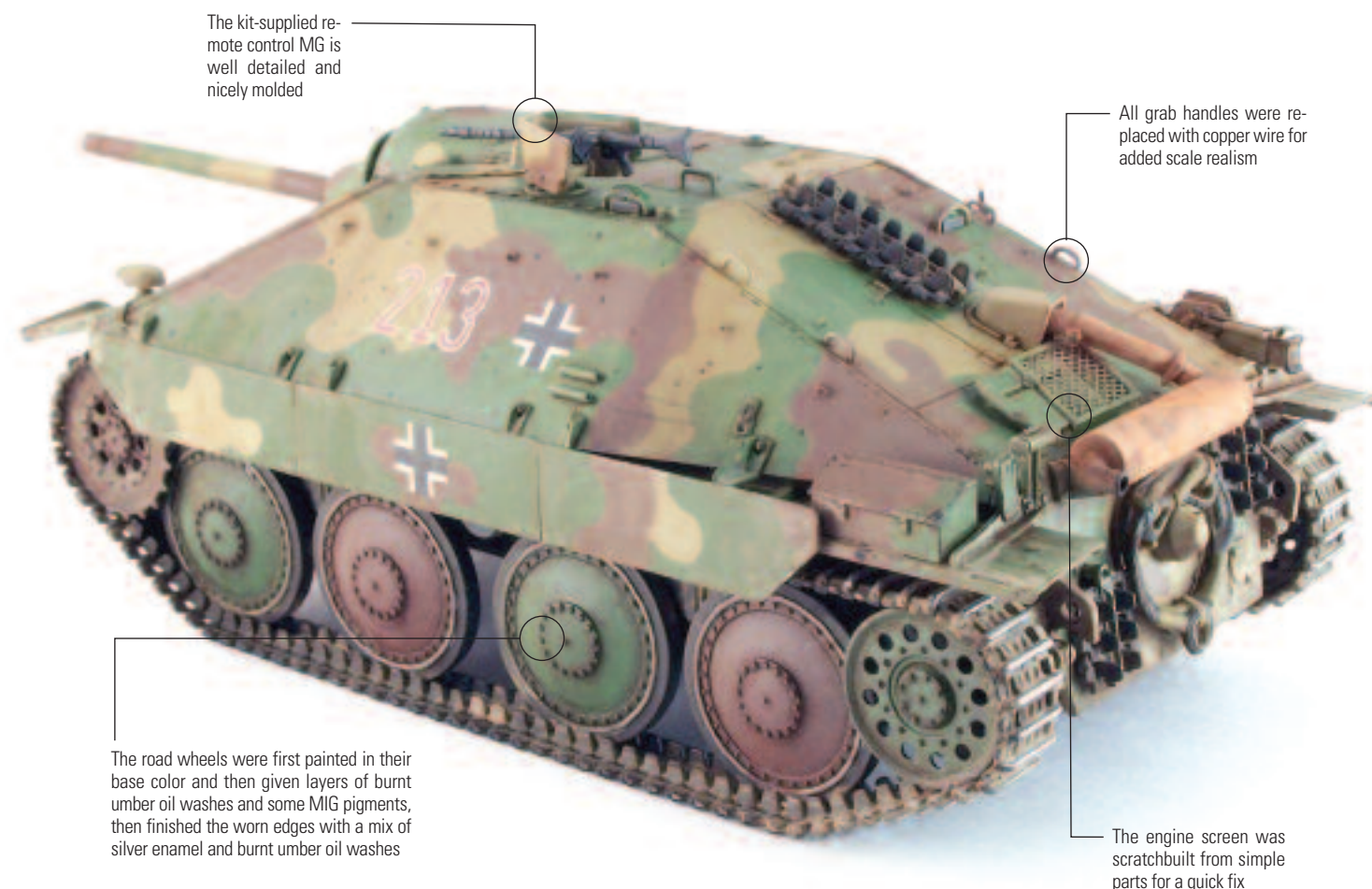
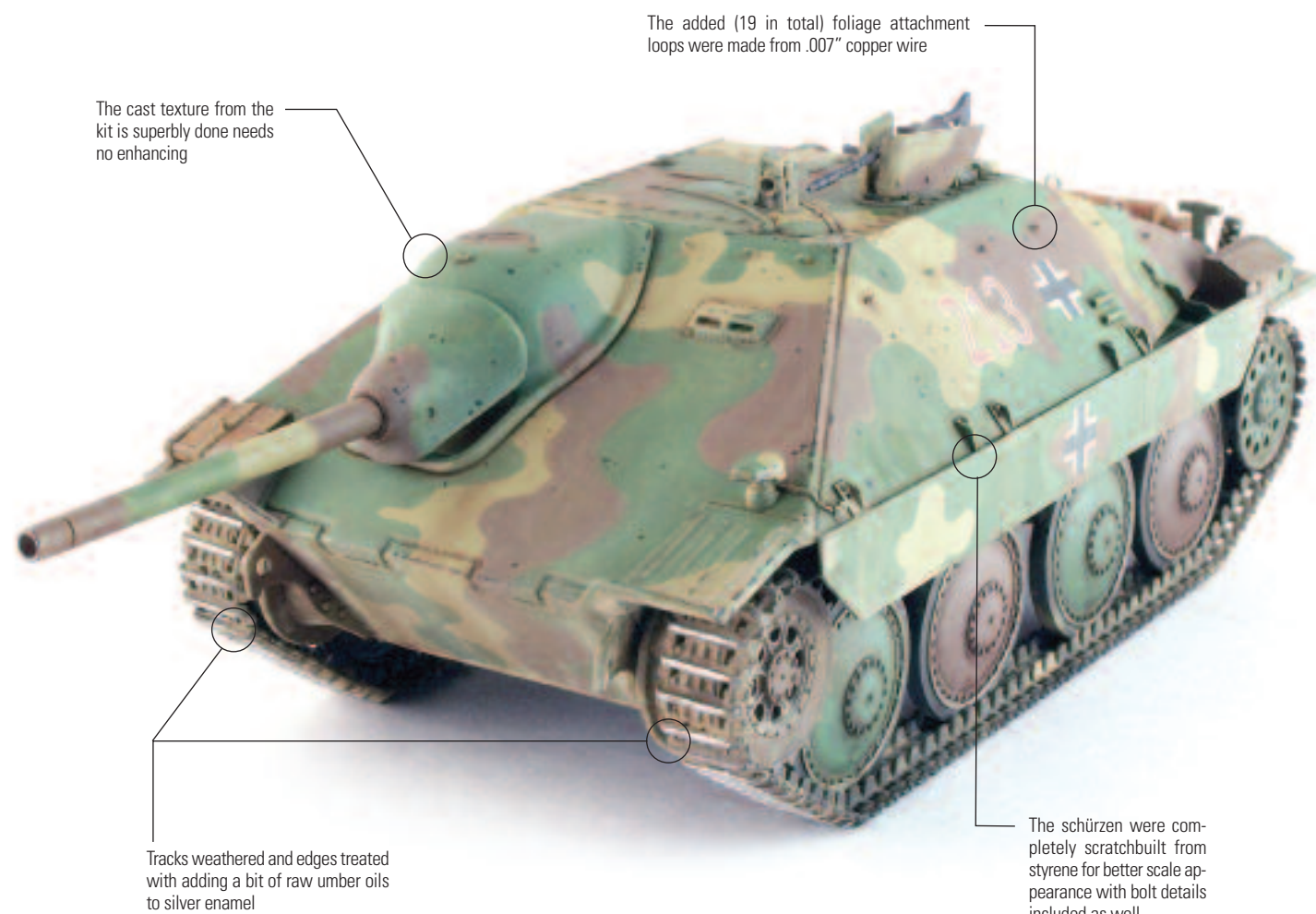
The next step in the weathering process was giving the model a light dusting of pigments. For this I used a blend of MIG Productions excellent P030, Beach Sand and P028, Europe Dust to create a nice light-earth color. This was mixed with Humbrol Enamel Thinner and applied to the lower extremities of the model with an old brush; concentrating heavier amounts on the tracks and undersides of the fenders. I reduced the solution with thinner even further and using a fine brush, applied small amounts to logical places elsewhere on the vehicle. Once the model was completely dry, a quick swipe with a brush moistened with thinner creates very convincing, but subtle streak effects on the vertical surfaces, while also controlling the buildup of pigments in unwanted areas.

As a final touch, I simulated the worn metal areas on the running gear and tracks by adding a bit of raw umber oil to silver enamel. This creates a somewhat "earthy" metallic color, perfectly suited for the task.

(continued on page 27)



Not wanting the muffler to look completely rusted away, I simply mixed a combination of red-brown and ochre pastels, reduced with Tamiya Thinner, and airbrushed them onto appropriate surfaces. This assembly was further enhanced with minute applications of washes and pigments.



THE HETZER PROVED AN EFFECTIVE TANK DESTROYER AND SERVED AFTER THE WAR WITH THE SWISS ARMY



IN CONCLUSION Even with the extra time spent stubbornly scratch-building a few details, this model is one quick build. I believe that's one of the features I enjoy about this scale in general—the ease in which it lends itself to assembly, and the potential for detailing it offers. My

philosophy has always been, the sooner I get a model to the painting and weathering stage, the more I like it. In that regard, this scale suits me just fine! Now where did I put that SU-122...?

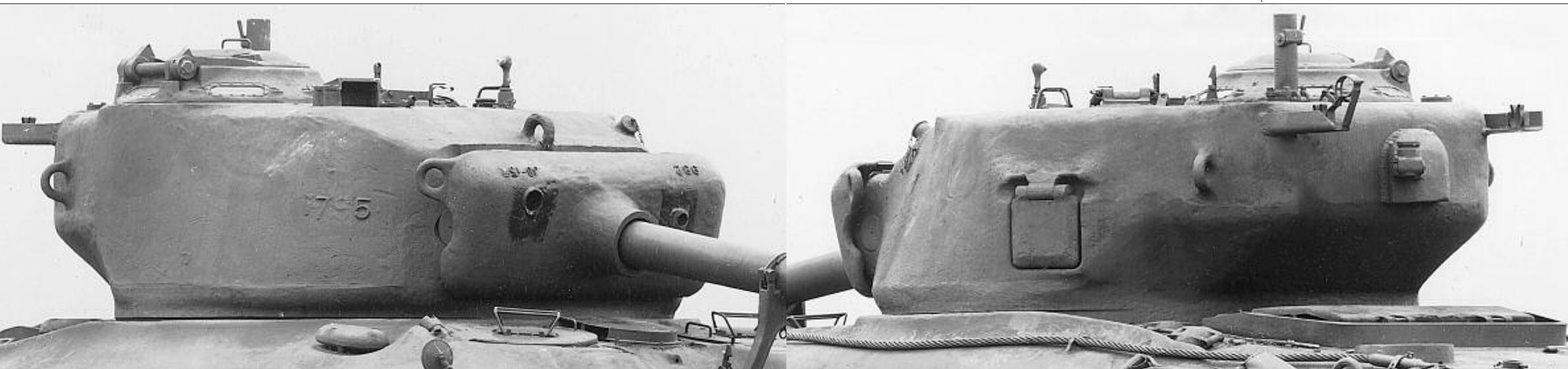


The American Sherman tank was constantly improved throughout the course of its production. Improvements were sought in terms of its automotive abilities; it's armored protection and its armament. In the summer of 1942, the search began for a larger gun to replace the then standard 75mm gun.

M4 Sherman T23 turret
text and photos by Pat Stansell

M4 SHERMAN TURRET

T23



T23 TURRET A replacement for the 75mm gun was found in the new 76.2mm, initially known as the T1. Although the T1 was successfully fitted to the existing M34 gun mount, later testing concluded that the configuration could only be regarded as an interim solution due to the small size of the turret and traversing difficulties on sloped surfaces.

Interest in the larger weapon was revived in early 1943 when a new Sherman design was proposed. Known as the M4E6, this tank featured a number of unique design aspects. Among these were "wet" stowage ammunition, a composite hull (mating the cast nose of the M4A1 and the

welded hull of the M4) and the subject of this article, the T23 turret.

The name "T23" stems from the T20 series of tanks. This series was originally proposed as a replacement for the Sherman tank and was to eventually lead to the Pershing series. The turret of the T23 tank used the same turret race as the Sherman and it was a sound platform for the 76mm T1, now standardized as the M1A1. To incorporate the gun into the T23 turret a new gun mount was developed, the T80. The T80 eliminated the rotor design of the 75mm gun and replaced it with a large gun shield extending the width of the turret front. This shield was 3 1/2 inches thick and it

substantially improved the protection in this area. The remaining armor on the T23 turret ranged from 3 inches on the front and 2 1/2 inches on the rear. The M4E6 remained a platform for refining the T23 turret and M1A1 gun, but did not enter service.

By the summer of 1943 the 76mm T23 was considered a success and it was decided to incorporate it into the production of the M4, M4A1, M4A2 and M4A3. The first tanks manufactured with the T23 turret were the M4A1, this type leaving the production line in January of 1944. Eventually, 76mm models of all the above types were produced,

with the exception of the M4. Production of the M4 had been scheduled for the summer of 1945, but was cancelled by the war's end.

Early versions of the T23 turret utilized the same split hatch arrangement seen on the 75mm turret. On the T23 this was placed over the loader's position. A new armored vision cupola was installed for the commander. This cupola was to become standard on all late versions of the Sherman turret. Later, an oval loader's hatch was incorporated. The M1A1 gun was superseded by the M1A1C (with tightened rifling) and the M1A2, which accommodated a muzzle brake.



1

The following images depict the beautifully restored M4A1 of the Kevin Wheatcroft collection. 1. The impressive T80 mantlet. The opening for the co-axial .30 caliber



2

machine gun is to the right, while the gunner's sight opening is to the left. 2. The large bulge on the top right side and the casting numbers are both in evidence here. Slight



3

differences in these areas can be perceived depending on the manufacturer of the turret. 3. The rear armored ventilator bulge was the main mounting point for stowing the



4

large .50 caliber machine gun. The angle brackets on either side supported the barrel. 4. The shell ejection port. Note the casting number on the bottom edge of the door.



5. The forward edge of the T23 turret. The rough texture of the cast turret can be seen to good advantage here. The plugs located in the center left are for the installation of a searchlight. The oval loader's hatch can be seen at lower left. The device located between the two hatches is for securing the barrel of the .50 caliber gun during travel. 6.

A view from the front of the turret shows the commander's cupola, the antenna mast for the SCR 528 radio set and the pintle mount for the .50 caliber machine gun. 7. A view down the commander's cupola. Immediately evident is the gunner's seat. The commander's folding seat can be seen behind and to the left. 8. This bottom view of the

commander's hatch reveals how the inner portion of the hatch could be rotated to give the commander a 360° field of view. The brass ring gauge and pointer indicated the position. The hatch accommodated the standard M6 periscope. 9. A view of the commander's cupola from below showing each of the armored glass elements. Note the

three bolts securing each glass block. 10. An exterior view of the gunner's M4A1 periscope and its armored housing. The M4A1 provided the gunner with the ability to lay the gun on its target. The device to the right of the sight is the commander's vane site. This simple metal device allowed the commander to roughly orient the turret on target



and better communicate his intentions to the gunner. 11. A rear view of the turret-mounted machine gun. This shot reveals many of the details of the charging handle, the mounting pintle and the ammunition box and tray. 12. A closer view down the commander's hatch showing the various pieces of gear stowed around the inside of the turret and their

attendant labels. The round object at the lower left is the azimuth indicator. Just visible at the far right is the turret-mounted searchlight (see caption five) in its stowed position. 13. A close-up of the loader's seat. Barely visible below the backrest of the seat is one of the fuel tank gauges. Seen behind and on the left of the seat, is the auxiliary generator.

14. The M1919A4 .30 caliber co-axial MG and its mount. One of the two massive recoil cylinders is seen just to the right. The tubular frame elements for the gun's recoil guard can be seen at the top and bottom right. 15. The breechblock of the M1A2 76mm gun. The main shield for the gun recoil guard can be seen behind it. 16. The gun laying equipment

as seen from the gunner's position. Prominent in the upper center is the M76 direct-sight telescope. To the right of the telescope is the turret electrical control box. To the lower right is the manual traverse control (next to the azimuth indicator). To its left is the power traverse mechanism. The gun elevating hand wheel is seen at lower center.



I must admit, it's a great time to be a ship modeler. A few years back, Revell-Germany released their S-100 and a movement took hold—let's build ships in 1/72 scale. Then came their Type VII U-boat and a second late-war boat, and the movement was in full swing. The latest release, a U.S. Navy *Gato*-class submarine, has pushed the large-scale ship movement over the top.

At 53" long, this kit is a monster. Still, the sheer size of this plastic kit hasn't dissuaded many from tackling it, as the Internet forums are abuzz with *Gato*-related topics and questions, and the aftermarket companies are racing to release upgraded and conversion parts.

NEVER THE EASY PATH Not being a patient individual and wanting to do something different, led me to scour my resources for a submarine that would be easy to convert, yet different enough to stand out in a crowd. After consulting with my resident ship researcher at the National Archives, Ron Smith (he doesn't work there, but I think he has a cot in their basement!), I found my perfect candidate—the U.S.S. *Mingo*. Like most other boats in the class, *Mingo* was heavily modified during her career and it was her last wartime refit in July 1945 that caught my attention.

Mingo was unique for one simple reason—she retained her high bridge and plated-in periscope shears. This meant no conversion to the fairwater. She did, however, carry twin 40mm guns fore and aft, and a 5"/25 deck gun. She also carried the late-war SV radar mast and altered periscope shears. From all the *Gato* photos that I studied, only two boats with the early Electric Boat limber hole pattern had this configuration. *Mingo* was one and

the U.S.S. *Gunard* the other. *Gunard*'s railings were removed from the top of the sail and replaced with circular lookout positions. This meant more work, so I decided to go with *Mingo*.

After studying several detailed photos I started construction. I built the sail straight from the box and decided to add the sponsons for the aft 40mm from styrene sheet. I installed the stanchions for the railings with .025" rod and used a piece of brass tube as a constant height gauge. I painted the deck black, but really wasn't happy with the results, so I tore the stanchions off and started over. The deck sponsons had wooden slats, something I neglected to add, so I laminated a piece of grooved Evergreen sheet to the deck, cut it to shape and filled the seam along the edge.

PERISCOPES AND RADAR Since the 1945 version of *Mingo* featured a freestanding radar mast, I had to fabricate one. I chucked some nylon rod into my lathe and proceeded to turn a mast slightly larger in

MODEL: 1/72 scale Revell GATO-Class Submarine - kit no. 32508

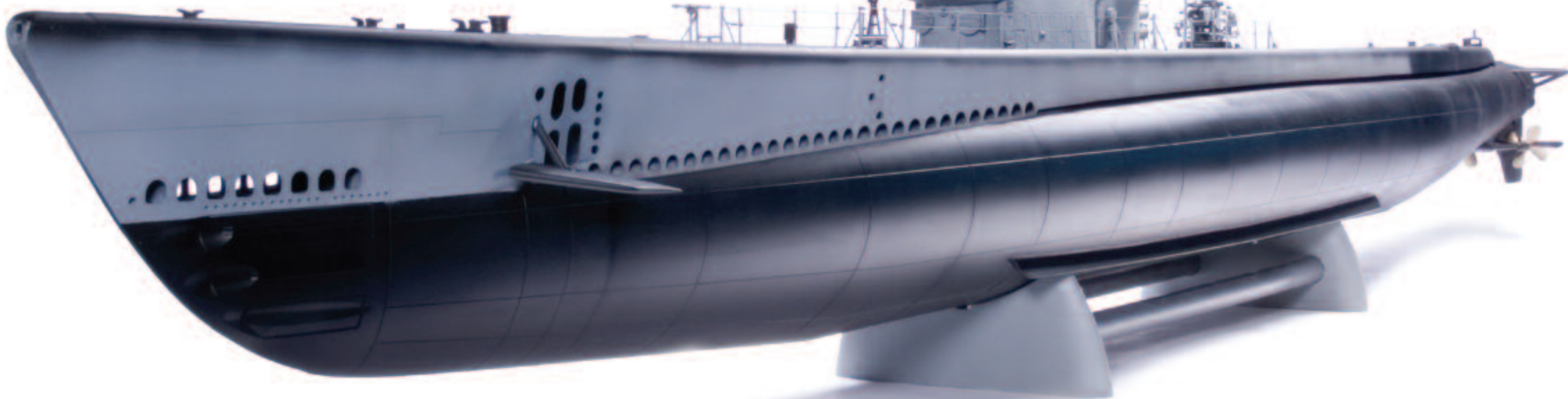
ACCESSORIES: White Ensign 40mm Mk III Bofors guns, Part No. 7217

PAINTS: Polly-Scale Lt.Gray Undercoat, Engine Black, Flat Black.

THEATER: Pacific War

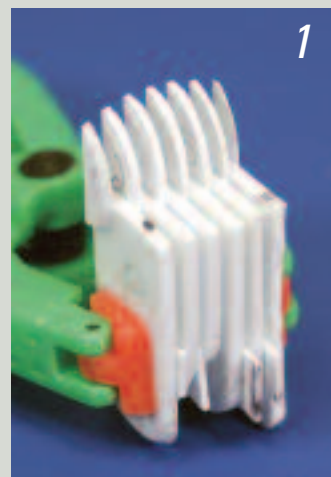
SKILL LEVEL: Intermediate Construction, Intermediate Painting

Revell's *Gato* is a big model—the largest injection-molded ship model to date. It's three inches longer than the previous record holder, Nichimo's 1/200 scale IJN Yamato.



U.S.S. MINGO SS-261

1945



1



2



3



4

RADAR CONSTRUCTION 1. After cutting the shaped laminate sheets from the main block, I removed the spacer pieces and arranged the curved parts in their proper order and glued them into place. **2.** After the glue dried, I chucked a motor-tool sanding drum into my lathe and cut away the face of the parts, giving me a uniformly curved shape. **3.** I finished off the array by

adding photo-etched screens leftover from a T-34 tank detail set, added a piece of styrene strip, and scratchbuilt the dipole and antenna base. **4.** The finished array sitting atop the scratchbuilt SV radar mast. This shot clearly shows the modifications I made to the smaller SJ radar array. I relocated the entire array from the front of the periscope shears to the aft section.

RADAR CONSTRUCTION

There's absolutely nothing wrong with the Revell conning tower if you want to model a mid-war boat. Always wanting to do something different, I decided to model a late-war, highly upgraded *Gato*. By 1945, *Gatos* carried a wide array of electronics and AA guns.



5

CONNING TOWER 5. To allow the 40mm Bofors gun to rotate 360 degrees on the mount, sponsons were needed to account for the width of the gun mount. I added these with Aves Apoxy Sculpt and sanded them smooth. After I added the sponsons to the sides of the sail, I capped the



6

decking with styrene sheet, but learned later that the sponsons had wooden planking similar to the rest of the deck. I stripped the railings off and laminated a sheet of scribed model-railroad styrene to the deck. **6.** After I painted the deck, I made the new railings using styrene rod.

HISTORICAL PHOTO



U.S.S. *Mingo* SS-261 off Mare Island, California, on July 20, 1945. *Mingo* had just completed her refit and was running her trials when this photo was taken. This particular refit, one of several that *Mingo* received during her career, was the most dramatic. *Mingo* returned to the war zone with twin 40mm guns, a new 5"/25 caliber deck gun, and a complete late-war radar suite including a free-standing SV radar mast. Despite this major overhaul, she retained her high bridge and plated-in periscope shears, features most commonly seen on mid-war boats. (NARA via Ron Smith)

diameter at the base than I needed. The base of the mast was actually semi-circular in shape, so I flat-sanded the curved portion of the forward part of the mast to achieve the correct shape. The mast originally carried an SD radar array and many boats carried this early array throughout the war. I figured this was a simple fix. All I had to do was cut the SD radar array from the kit part and attach it to the mast. Wrong! *Mingo* carried a late-war SV radar array, a large (by submarine standards) parabolic dish. After looking at photos of the complex SV radar, I actually considered modeling another boat!

Undaunted, I thought about exactly how I'd go about scratchbuilding this array. Using what little ingenuity I had left, I cut small squares from two thicknesses of styrene. The thinner sections would form the vertical fins of the array, while the thicker sections would act as spacers while I shaped the array. After I had the proper rough dimensions, I drilled a hole through the laminate and ran a machine screw through the group

to hold everything in place.

Starting with 220-grit wet-or-dry paper, I roughed-out the shape of the backside of the array and once I was happy with the shape, I cut the section from the block, removed the thicker pieces of styrene I had used as spacers and glued the parts to the original block of styrene.

Once the glue had dried, I chucked a cylindrical grinding wheel into my lathe and cut away the inside of the assembly, creating the concave "dish" of the array. After I was satisfied with the depth of the curve, I glued photo-etched grills left over from a 1/35 scale T-34 tank fret. They happened to fit perfectly and provided the uniform spacing I needed to replicate the array. After the brass parts were added, I shaped and glued styrene strip around the outside edges.

With the difficult portion of the work done, I cut the part from the block and shaped the base of the array. I wrapped styrene strip around a piece of aluminum tubing to form the mount, then capped the back of

the base with another curved piece of styrene. After sanding away the seams, I capped the aluminum tube with a 1/48 scale WWI propeller hub plate and fashioned the dipole for the array from styrene stock. For some added detail, I used photo-etched platform supports from a 1/700 scale naval set as stiffeners for the dipole.

I finished off the mast with some grab-irons; these were hanger brackets from the same 1/35 scale T-34 photo-etched sheet I used for the radar array. I used 1/350-scale naval hatch hatches to simulate the access panels on the opposite side of the mast.

Gatos carried a variety of radar types, and the Revell kit has the SJ surface-search radar located forward of the periscope shears. This was the standard position for the array on most mid-war boats, but with numerous refits and fairwater alterations, the SJ array was moved aft of the periscope shears with the addition of the SD/SV mast. I altered the periscope shears and cut the SJ array off the shear structure, and attached it to the aft portion of the assembly. I added a small extension to

the deck and ran a length of brass tubing down into the conning tower to simulate the SJ array shaft assembly. I set everything in place just see how it would look later on, then set the entire assembly aside. It's obviously the most delicate part of the model, and I'm quite adept at breaking things.

IT'S EASY FROM HERE, RIGHT? The remainder of the kit is pretty straightforward to build. The hull went together with a little application of force. The hull halves were slightly warped but this didn't present any difficulties. I attached the three-piece deck section and side panels and filled accordingly. The only problem I encountered was a noticeable gap between the bow and midship sections. I solved this problem by adding styrene strip to the gap, trimming it and sanding it smooth. The results were better than I expected.

It was about this time in the construction that my aftermarket 40mm Bofors guns arrived from White Ensign Models in the UK. These

replacement guns made the kit items look toy-like and required a minimal amount of work. I built two guns, one for the forward platform, one for the aft platform. When the Bofors guns were added to the cigarette deck, the 20mm Oerlikon usually found on the sail was moved to the main deck fore or aft, depending on the position of the deck gun. The 20mm supplied in the kit is quite nice, although I did replace the ring site with a photo-etched part from a 1/48 scale WWI aircraft fret from Tom's Modelworks.

It's very easy to get caught up in the excitement of a project like this one. I must confess I was running amuck in a world of styrene and detail photos. Suddenly, like a brick to the head, I realized my dilemma. *Gatos* that carried a free-standing radar mast and twin 40mm guns also carried a 5"/25cal. deck gun. This posed a serious problem since no one makes a 1/72 scale 5"/25cal. deck gun, and there's no possible way you can fake the 4" deck gun included in the kit. Wonderful: this means more scratchbuilding.

BRINGING OUT THE BIG GUNS A call to my resident researcher Ron Smith yielded some detailed photos and line drawings of the Navy's 5" deck gun. Although quite small in 1/72 scale, it's still a complex piece of ordnance. I started by scaling down the drawings and making multiple copies. My first step was the breechblock and barrel, so I turned a piece of brass tubing on the lathe to produce the barrel. I then cut a piece of nylon stock for the breechblock. I cut the portion of the drawing (now in scale) and attached it to the nylon, then cut it to shape. I drilled the breech block straight through to accept the barrel and create the breech opening and used a razor saw to create the vertical opening in the top of the breech. The key to a successful scratchbuild is the ability to identify and break down the basic shapes of an object. This deck gun was actually quite simple in the end. It was rendered with successive layers of styrene to simulate the trunnion, Plastruct U-channel styrene to simulate the guide rails, tubes for the recoil and counter-recoil cylinders, various bits from the kit's deck gun, including foot rests, traversing wheels and trainer's seats.

ANTI-AIRCRAFT GUNS



7. Since I needed another 40mm mount for *Mingo's* 1945 configuration, I replaced the kit's gun with a pair from White Ensign Models. 8. The white metal guns are nicely detailed and the photo-etched parts really add to the delicate look of this otherwise menacing weapon.



9. I retained the kit's 20mm Oerlikon gun and the only additional detail this weapon required was a photo-etched gun sight ring. I used a leftover 1/48 scale photo-etched part from a Tom's Modelworks WWI aircraft fret.



Submarine commanders throughout the war complained that the 3" and 4" deck guns carried by their boats lacked sufficient punch. In 1944, the Navy introduced the 5"/25 caliber deck gun, which quickly addressed the captains' needs. Since there's no 5" deck guns available in 1/72 scale, I scratchbuilt one. 10, 11. Using a set of reduced drawings, I turned the barrel on



my lathe and made the breechblock from nylon stock. 12. The remainder of the deck gun was scratchbuilt from styrene and brass tubing, and some parts stolen from the kit's 4" deck gun. Although it looks complex, breaking it down to its most-basic shapes really makes it painless.



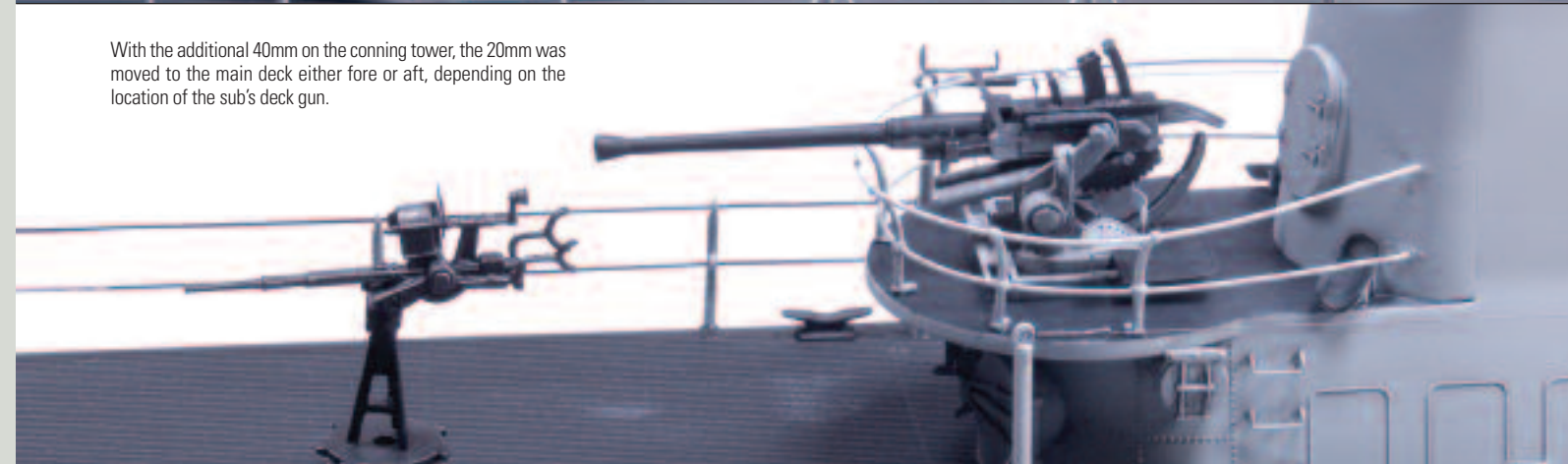
13. Although the kit itself is nicely molded with excellent details, I wanted more. I replaced the kit anchor with a white-metal version that I cast. 14. Although the anchor was originally designed for another ship model, it fit perfectly into the *Mingo's* anchor well. 15. After dry-



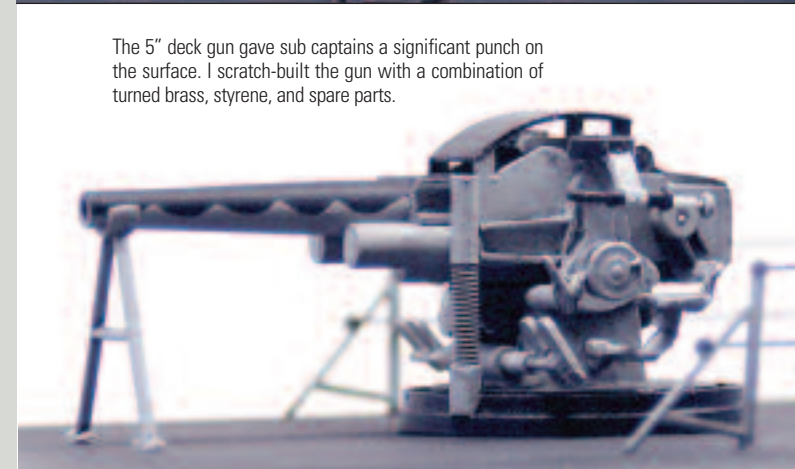
fitting the prop assembly, I decided to replace the plastic prop-shafts with brass tubing. No matter how nicely molded the part, nothing compares to the look of brass or aluminum tubing. This has always been a limitation of the injection molding process.



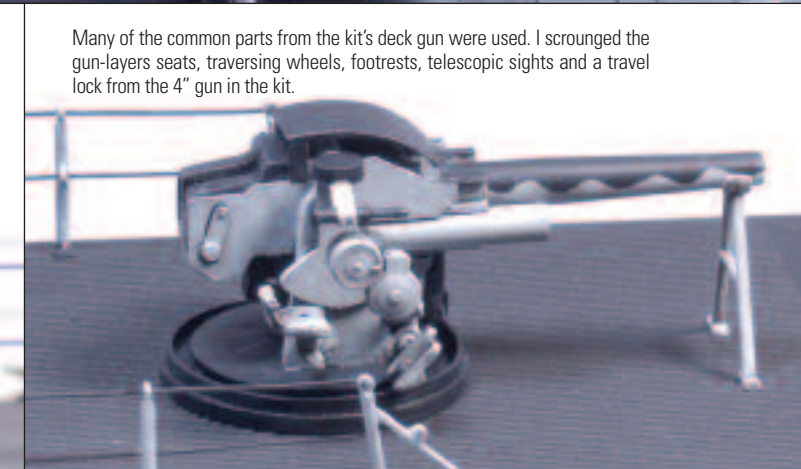
The twin 40mm Bofors guns added tremendous offensive firepower to an already lethal warship.



With the additional 40mm on the conning tower, the 20mm was moved to the main deck either fore or aft, depending on the location of the sub's deck gun.

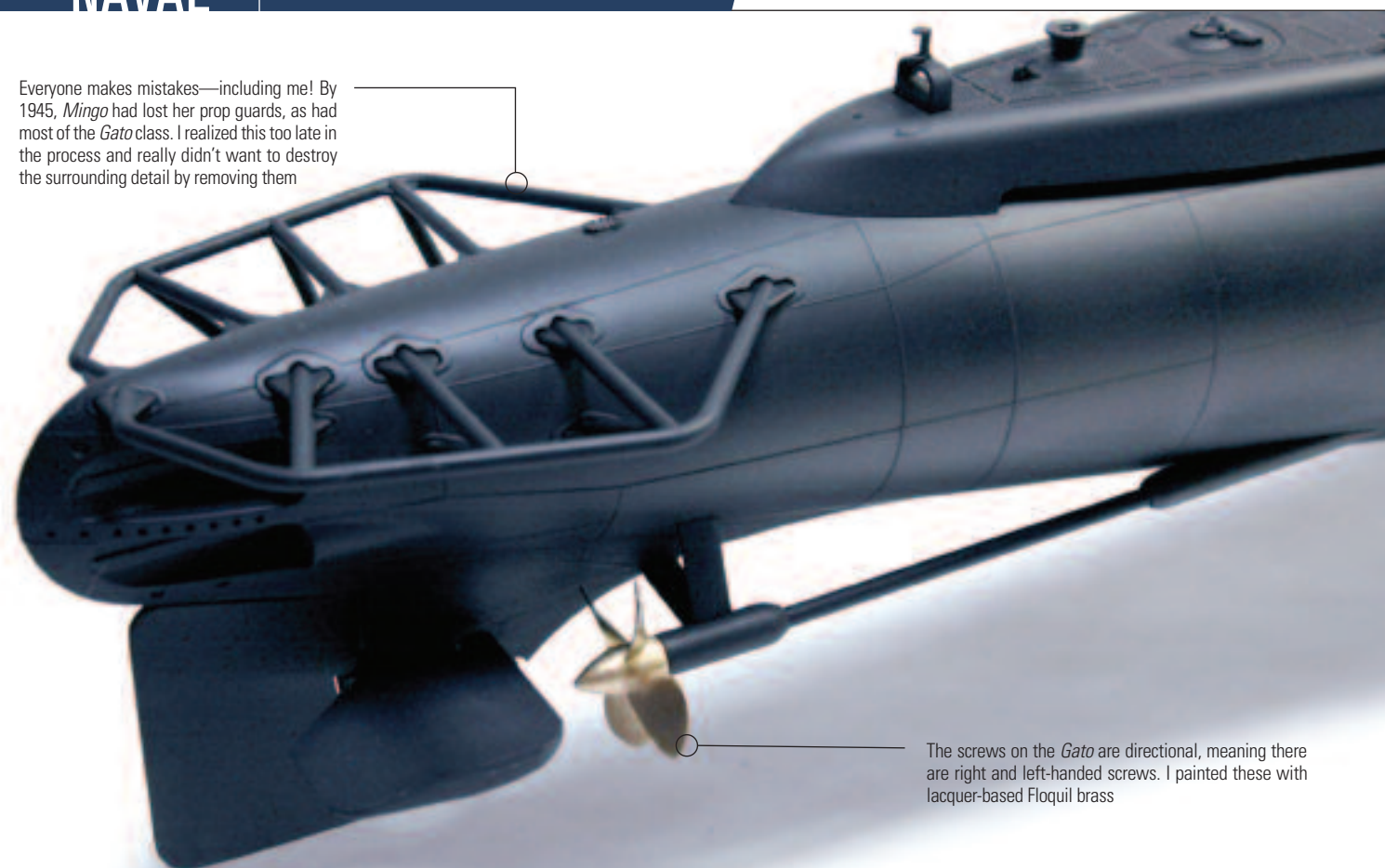


The 5" deck gun gave sub captains a significant punch on the surface. I scratch-built the gun with a combination of turned brass, styrene, and spare parts.

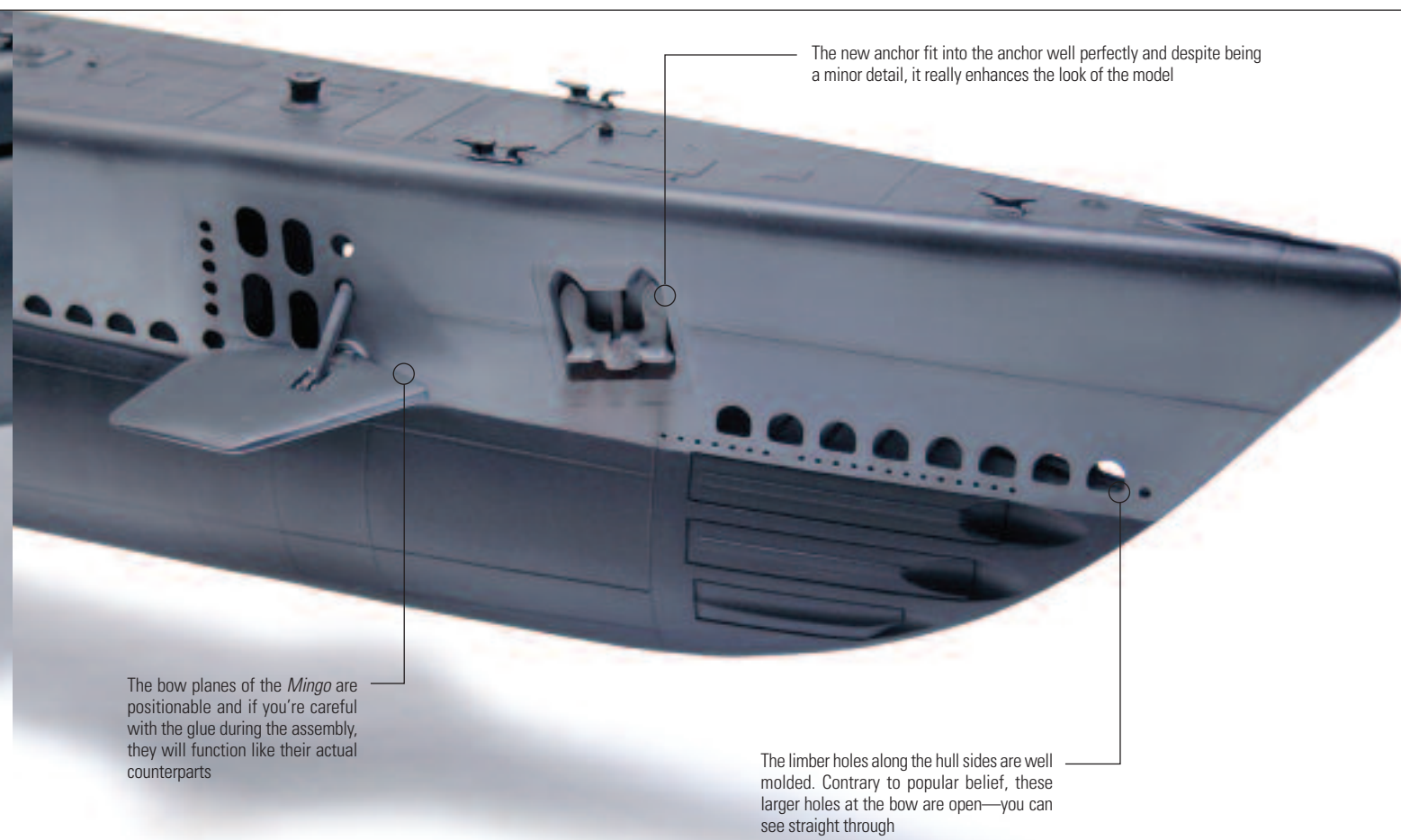


Many of the common parts from the kit's deck gun were used. I scrounged the gun-layers seats, traversing wheels, footrests, telescopic sights and a travel lock from the 4" gun in the kit.

Everyone makes mistakes—including me! By 1945, *Mingo* had lost her prop guards, as had most of the *Gato* class. I realized this too late in the process and really didn't want to destroy the surrounding detail by removing them



The screws on the *Gato* are directional, meaning there are right and left-handed screws. I painted these with lacquer-based Floquil brass



The new anchor fit into the anchor well perfectly and despite being a minor detail, it really enhances the look of the model

The bow planes of the *Mingo* are positionable and if you're careful with the glue during the assembly, they will function like their actual counterparts

The limber holes along the hull sides are well molded. Contrary to popular belief, these larger holes at the bow are open—you can see straight through

IN THE CASE OF THE U.S.S. MINGO, IT'S READILY APPARENT THAT SHE'S ARMED TO THE TEETH

WHAT'S LEFT? Having gone this far, there were a few minor details that I needed to address. I wasn't happy with the prop shafts, so I cut the plastic, drilled each end of the housing and installed a section of brass tubing. It seems to me that no matter how good the injection molding is, prop shafts, gun barrels, and other cylindrical objects always look better in metal. I also decided to replace the anchor. Something about the kit anchor simply wasn't right, so I rummaged through my spare parts box and found an anchor that was close, but not right. I wanted a better anchor, so I did my Don Quixote impression and went off on a wild crusade. I broke out the old spin-casting machine and poured my own (yes, I already had a mold for the part). Now that's more like it.

FINISHING THE BEAST With all of the sub-assemblies complete (pun intended), I started laying down paint. *Mingo* carried a Measure 32/3 SS-B paint scheme in 1945, not a Measure 32/355B scheme as the instructions indicate! Still, the majority of the submarine is black. I sprayed a coat of Polly-Scale Engine Black on the lower hull and deck, and on the deck areas of the sail, then masked the black areas and sprayed Polly-Scale Undercoat Light Gray along the sail and hull sides. Contrary to popular belief, the U.S. Navy issued specific painting instructions for all of their ships, including submarines. The demarcation line between the black on the deck and gray on the hull sides is soft-edged. To avoid overspray I masked the two areas when I sprayed initially, but went back afterwards and freehanded

a soft edge along the deck edge.

I painted the periscope shears and guns separately, and added a scalloped pattern to the tops of the barrels of both 40mm and deck gun. Although it appears that the guns were completely light gray in historical photos, I decided to add a little contrast to the model.

I wasn't happy with the periscope shafts on the model, so I removed the plastic parts, drilled into the shears and installed polished aluminum tubing. My plan was to attach the thin upper portion of the scopes to the tubes, but when does anything ever go according to plan? The search scope (the larger one) mated nicely with the tube, but the smaller attack periscope simply refused to line up. After several sandings and gluings,

Decks of wartime submarines, regardless of the camouflage scheme, were gloss black. Since high gloss is too obvious in this scale, I opted for a semi-gloss finish.



positioning and re-positioning, the part finally gave up the ghost and broke in half. I swear had nothing to do with it, honest. So, while the paint was drying on the rest of the model, I set out to create a new attack periscope. My lathe is perfect for cutting gun barrels and other heavy objects, but something as thin and delicate as a periscope head is another matter. I chucked a piece of brass rod in the lathe, exposing just a touch more than I needed, then broke out the Dremel tool with a cylindrical grinding stone. With the lathe turning and the Dremel turning and my stomach turning, I started shaping the periscope head. Less than 20 minutes later, success!

Weathering a predominately black model is a daunting task, because there's rarely any middle ground—the model is either under-weathered and too clean, or over-weathered and too stark. Since I was modeling *Mingo* as she appeared after her refit, her paint would be as close to pristine as I could make it without compromising the scale quality of the model. I post-shaded the weld seams along the hull with a mix of India ink and Tamiya thinner, and then applied some medium gray pastels over the top. I finished the hull by applying a thin black wash to blend everything together and sprayed a mix of Future and Tamiya X-21, Flat Base to deaden the finish. I sprayed the deck with a semi-gloss clear, since U.S. sub decks carried gloss decks.

TAKE HER DOWN! When it comes to *Gato*-class submarines, or any submarine for that matter, there's generally not much you can do to radically alter their appearance. *Gatos* only carried a handful of paint schemes and most of the changes made to the boats were standardized by 1945. The *Mingo* won't stand out dramatically in a roomful of *Gatos*, but to the discerning eye, she's quite different from her out-of-box sisters. By the time this story reaches our readers, companies like White Ensign Models in the UK will offer a variety of detail parts to enhance your *Gato*. These parts, coupled with the rumored release of a "government boat" from Revell, will allow modelers to build almost any of the 73 *Gato* class, and perhaps some of the 122 *Balao*-class boats, as well

The 20mm Oerlikon was considered a lightweight AA gun by 1945, but was retained for other purposes on U.S. submarines. It was an effective anti-personnel weapon and could wreak havoc on small wooden coastal vessels not worthy of an expensive torpedo

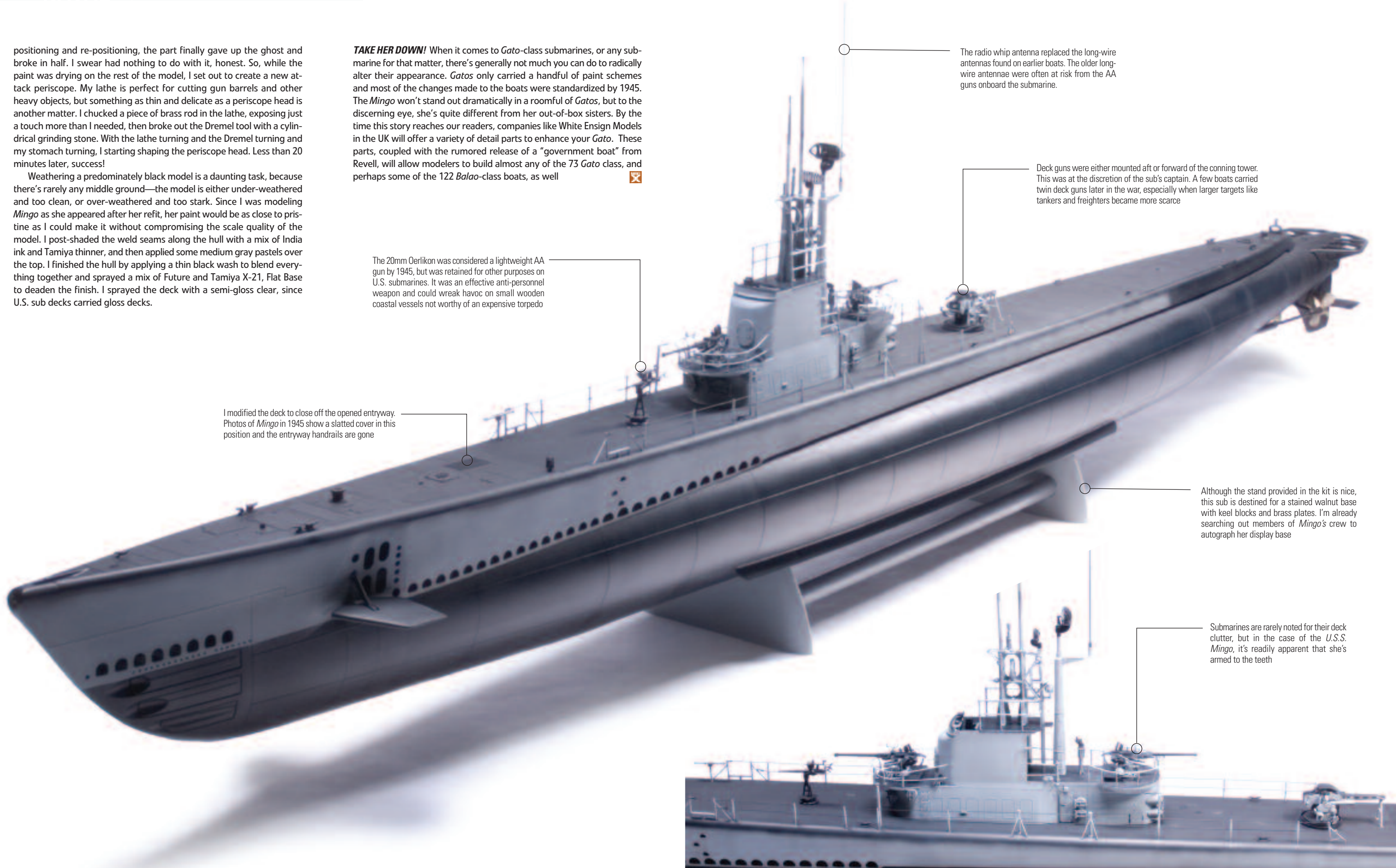
I modified the deck to close off the opened entryway. Photos of *Mingo* in 1945 show a slatted cover in this position and the entryway handrails are gone

The radio whip antenna replaced the long-wire antennas found on earlier boats. The older long-wire antennae were often at risk from the AA guns onboard the submarine.

Deck guns were either mounted aft or forward of the conning tower. This was at the discretion of the sub's captain. A few boats carried twin deck guns later in the war, especially when larger targets like tankers and freighters became more scarce

Although the stand provided in the kit is nice, this sub is destined for a stained walnut base with keel blocks and brass plates. I'm already searching out members of *Mingo's* crew to autograph her display base

Submarines are rarely noted for their deck clutter, but in the case of the U.S.S. *Mingo*, it's readily apparent that she's armed to the teeth



Euro-Militaire is one of the world's premiere figure and AFV modeling contests. The best of Europe and North America attend and it is a show to see at least once. This is Part one and the following is a snap shot of some the best figures on the contest tables. Part two will feature the AFVs in a future issue of MODELx.

EURO Militaire 2006

photos by Michael Rinaldi & Pat Stansell



GERMANIC WARRIOR An excellent rendition of a Pegaso piece by Hardy Tempest in 75mm.



GOOD KNIGHT This breath taking paint job is the work of Jesús Gamarra.



TWO FIGHTING SAMURAI This dramatic scene was rendered by Deigo Rina and Viktor Konnov and is based on Pegaso figures.



GRAND PRIX This Audi driver and car at the 1938 Donington Grand Prix was a display piece by Head Judge Geoffrey Illsley.



BELGIAN OFFICER Depicted on a Hippo in East-Africa, circa 1916 by Marijn Van Gils.



ONE-WAY TICKET An aptly titled WWI mini-vignette also from the talented hands of Marijn Van Gils.

CONFEDERATE SOLDIER This beautiful Confederate standard bearer was rendered by Luis Laguardia.

OBERSTURM-FÜHRER (1945) Jaume Ortiz demonstrates how a just a paintjob can transform a commercial casting.





DRAGON MODEL Something a bit different from John Sladden.



FALLSCHIRMJÄGER Jaume Ortiz slightly modified and painted this 120mm VP figure.



TEMPLAR KNIGHT This mounted 90mm pikeman dates from the 11th century and the original is a 90mm figure from Andrea. A superb finish by I. Parsons.



(opposite)
FALLSCHIRMJÄGER PT. 2 Jaume Ortiz was at it again with this late-war German paratrooper.

GNOME Another pleasing departure from the norm. This Elisena miniature was painted by Richard Poisson

SOUL OF SAMURAI An expertly painted 54mm Andrea figure by Thierry Faniel.

(right)
BEELPHEGOR The Soul Reaper by Davis Rodgez, of Spain.

THE GREAT ESCAPE A terrific display piece by Marijn Van Gils.





CHIEF MOSES A PiliPili release colorfully painted by Harold Stimla.



HENRY THE EIGHTH A stunning entry by Russian modeler Sucheva Galina.



BEST OF SHOW The BOS went to Phil Stutcinkas for his wonderful scratchbuilt German soldier grouping.



YARRY THE HALFLING A cool little fantasy piece by Dave Whaddit



NOSTROME REALE An Italian Marine from 1860 by Marco Fortentii.



SAMURAI ACTION Another superb piece from Belgian modeler Thierry Faniel.



MOHAWK The 200mm master for an upcoming bust from Pegaso Miniatures. Painted and sculpted by Massimo Pasquali.



WWI PRUSSIAN An excellent rendition by Alberto Fuentes.



93RD HIGHLANDERS Giansemio Shemar painted this La Torre bust.

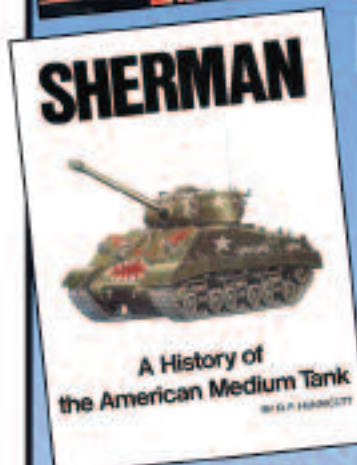
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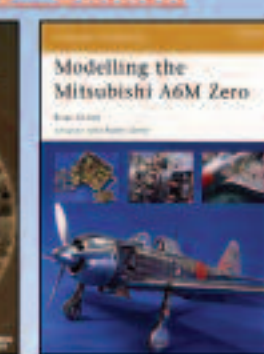
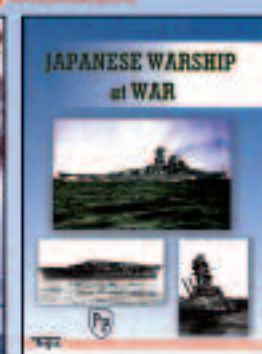
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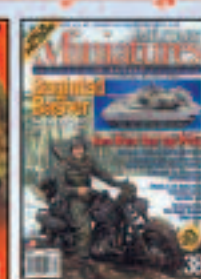
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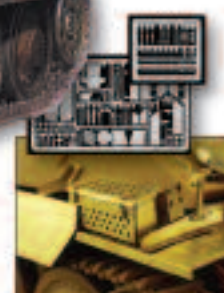
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